DOCUMENT RESUME

ED 190 564 SP 016 530

TITLE	Health, Physical Education, Recreation, and Dance for the Older Adult: A Modular Approach.
INSTITUTION	American Alliance for Health, Physical Education, Recreation and Dance (AAHPERD).
SPONS AGENCY	Administration on Aging (DHEW), Washington, D.C.
PUB DATE	Mar 80
GRANT	90-A-1177
NOTE	257p.
AVAILABLE FROM	AAHPERD, 1900 Association Dr., Reston, VA 22091 (Stock 45-26766, $6.95).
EDRS PRICE	MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	Attitudes; Death; Friendship; Gerontology; Health Education; Leisure Time; *Older Adults; Participant Satisfaction; *Physical Activities; *Physical Fitness; *Program Development; Quality of Life; *Recreational Activities; Teacher Education

ABSTRACT

This book is addressed to the teacher of health, physical education, recreation, and dance courses for older adults. The first section provides the foundation for understanding gerontology. It includes fundamental concepts within the areas of sociological, physiological, and psychological aspects of aging, health problems, and nutritional status of the older adult. The second section presents modules on the content areas of creative movement, general fitness, health education, and leisure. The appendix includes resource materials and selected syllabi of courses and programs in gerontology. (Editor/JD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED190564

HEALTH, PHYSICAL EDUCATION RECREATION AND DANCE for THE OLDER ADULT

A MODULAR APPROACH

SCOPE OF INTEREST NOTICE
The ERIC Facility has assigned this document for processing to: SP CG
In our judgement, this document is also of interest to the clearinghouses noted to the right. Indexing should reflect their special points of view.

U.S. DEPARTMENT OF HEALTH EDUCATION & WELFARE NATIONAL INSTITUTE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

HEALTH, PHYSICAL EDUCATION, REC D DA
FOR THE OLDER ADULT HEALT ATION
PHYSICAL EDUCATION, REC FOR
RECREATION AND DANCE HEA
DANCE FOR THE OLDER A EDU
HEALTH, PHYSICAL EDU DA
FOR THE OLDER ADULT H ON
HEALTH, PHYSICAL EDUCA A
FOR THE OLDER ADULT HE ION
PHYSICAL EDUCATION FOR
RECREATION AND DANC LT HEA
CE FOR THE OLDER A CAL EDU
TH, PHYSICAL EDUCA N AND DA
THE OLDER ADULT HEALTH, L EDUCATION
TH, PHYSICAL EDUCATION, RECREATION AND DAN
LT HEALTH, PHYSICAL EDUCATION RECREATION, A
ICAL EDUCATION, RECREATION AND DANCE FOR

SP 016 530

ABOUT THE ALLIANCE PROJECT ON AGING

Model Education and Service Approaches in Health, Fitness and Leisure for the Older American is intended to increase the number and quality of programs preparing students for careers in health, fitness, and leisure services for the aging. Its purposes are to:

- Identify principal roles of personnel in the provision of health, fitness, and leisure services for the aging.
- Identify, document, and promote existing exemplary programs in U.S. institutions of higher learning.
- Develop modular instructional materials to help prepare personnel.
- Develop a manual for practical work-related experiences for students.
- Develop a practical guidelines manual for initiating and implementing student-conducted projects.
- Conduct regional workshops to help institutions with curricular and service activities.
- Evaluate, revise, and publish materials developed by the project.

ABOUT THE ALLIANCE

The American Alliance for Health, Physical Education, Recreation and Dance (AAHPERD) is a voluntary professional organization currently made up of seven associations offering programs in movement and health-related fields. The more than 50,000 members are teachers, coaches, recreation leaders, administrators, and students preparing to work in these areas.

HEALTH, PHYSICAL EDUCATION, RECREATION, AND DANCE FOR THE OLDER ADULT: A MODULAR APPROACH

Co-editors

Dan Leviton, Ph.D.,
Consultant, AAHPERD Project on Aging, and
Professor of Health Education
College of Physical Education, Recreation, and Health
University of Maryland
College Park, Maryland

Linda Campanelli Santoro
Staff, AAHPERD Project on Aging
Department of Health Education
University of Maryland
College Park, Maryland

American Alliance for Health, Physical Education,
Recreation, and Dance
1900 Association Drive
Reston, Virginia 22091

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

AUG 2 5 1980

American Alliance for Health, Physical Education,
Recreation, and Dance

Project on Aging Staff

Project Director: Peter J. Verhoven

Project Co-Coordinator (Media):

Elinore Darland

Project Co-Coordinator (Training):

Ray Ciszek

Project Associates

Robert M. Beland
James F. Emory
Michael J. Leitner
Linda Campanelli Santoro
Raymond Tedrick
Dan Leviton, Consultant
Rosabel S. Koss, Chair, Alliance National
Committee on Aging

The materials presented in the document were developed pursuant to a grant (#90-A-1177) from the U.S. Office of Human Development Services, Administration on Aging, Department of Health, Education, and Welfare. The opinions expressed herein do not necessarily reflect the opinions or policy of the Office of Human Development Services, and no official endorsement by the Office should be inferred.

HEALTH, PHYSICAL EDUCATION, RECREATION, AND DANCE FOR THE OLDER ADULT: A MODULAR APPROACH

Co-editors

Dan Leviton, Ph.D.
Linda Campanelli Santoro

In collaboration with the Project on Aging Staff and Consultants

Peter J. Verhoven, Project Director
Robert M. Beland
Mitzi J. Carr
Gail M. Chandler
James F. Emory
Fred Humphrey
Michael J. Leitner
Elizabeth Ritchey
Raymond Tedrick
Michael W. Tichy
Anna Mae Tichy

American Alliance for Health, Physical Education, Recreation, and Dance
1900 Association Drive
Reston, Virginia 22091

March 1980

FOREWORD

The American Alliance for Health, Physical Education, Recreation, and Dance is pleased to present this modular training program for working with the older adult in creative movement and dance, health education, fitness, and leisure.

As a profession, we are increasingly aware of the positive contributions to improve health and a sense of well-being that the fields of health education, physical education, recreation, and dance can make.

Through the assistance of the Administration on Aging, the Alliance engaged in a two-year project entitled "Model Education and Service Approaches in Health, Fitness, and Leisure Needs of the Older American."

Through this effort the Alliance conducted a series of regional workshops entitled "Preparing Catalysts to Work with Older Adults," produced the film "Health, Fitness, and Leisure for a Quality Life," and further enhanced the knowledge of our membership by providing the "News Kit on Programs for the Aging" in the Alliance UPDATE newspaper.

This document is but another means of expressing our commitment to promote quality education and service delivery to our nation's older population. It is designed to upgrade the quality of instruction for those who have chosen to pursue a career of providing health education, fitness, dance and/or leisure programs to the older American.

We want to express special thanks to Dan Leviton of the University of Maryland for serving as consultant to the seven workshops undertaken by the Project on the Aging and with Linda Campanelli Santoro, for development and editing of this document. These are the first comprehensive

learning/teaching modules integrating the fields of HPERD and gerontology.

George F. Anderson
Executive Director

ACKNOWLEDGMENTS

The American Alliance for Health, Physical Education, Recreation, and Dance, the Alliance National Committee on Aging, and the Alliance Project on Aging are to be thanked for their contributions and efforts to develop this volume.

Thanks are also extended to the following organizations for their assistance:

Adult Education Association
National Association for Human Development
American Dietetic Association
American Association for Retired Persons
National Retired Teachers Association
National Council on Aging
President's Council on Physical Fitness and Sports

Special recognition is extended to the following individuals for submitting the draft of modules which were later modified by the editors for inclusion in this volume:

Ms. Mitzi J. Carr, consultant in creative movement and activities for the less active, the Adults Health and Developmental Program, University of Maryland, for collaborating on the module on creative movement.

Ms. Gail M. Chandler, dance consultant, Washington, D.C., for collaborating on the module on creative movement.

Dr. Fred Humphrey, chairperson, Department of Recreation and Leisure Studies, University of Maryland, for contribution to the module on leisure.

Drs. Elizabeth Ritchey, Jane Wentworth, and Phyllis Bowen, Center for Gerontology, Virginia Polytechnic Institute and State University, for the module on health education.

Dr. Michael W. Tichy, Coordinator of Health Education and Director of Adult Fitness, Portland State University, and Anna Mae Tichy, R.N., M.N., Mt. Hood Community College, for the module on general fitness.

Special appreciation is extended to Dr. Peter J. Verhoven, Associate Professor of Recreation, University of Maryland, for his guidance and overall direction in completing the Project on Aging. Similarly, the Project staff members are thanked for their consistent effort over the two-year period.

Elinore Darland, Alliance liaison to the project, was extremely helpful throughout its duration. Her perseverance and support were especially helpful in the final stages of editing and preparation of this volume.

Michael J. Leitner, a doctoral student at the University of Maryland, was helpful in the elaboration and development of the modules having to do with leisure and recreation.

Linda Campanelli Santoro, Associate Director of the Adult Health and Developmental Program at the University of Maryland and my editorial associate, is thanked for taking on the massive responsibility of developing individual modules, editing others for final publication, and for her invaluable help in bringing the final product to fruition.

Dan Leviton
University of Maryland
College Park, Maryland
1980

TABLE OF CONTENTS

		Page
Foreword		i
Acknowledgments		iii
Introduction		1
	Foundations of Gerontological Education	
Module 1:	The Sociological Aspects of Aging	21
Module 2:	The Physiological Aspects of Aging	33
Module 3:	The Psychology of Aging	69
Module 4:	The Newest Frontier for HPERD--Death and Death-Related Behavior	95
	Content in Creative Movement/Dance, General Fitness, Health Education, and Leisure	
Module 5:	Creative Movement/Dance	117
Module 6:	General Fitness	139
Module 7:	Health Education	175
Module 8:	Leisure	217
	Reification	245
	General Reading List	247

INTRODUCTION

People are living longer. An infant born in 1978 can expect to live 73.3 years on the average. However, an infant born at the beginning of the 20th century could expect to live to a ripe old age of 47 years. At age 65, remaining life expectancy is 14 years for men and 18 years for women. In 1900, a 65-year-old male could expect to live only 11 more years, while his female counterpart could expect to live about 12 years more. Thus, when all things are considered, the average individual who lives to retirement age (age 65-70 years) has become part of a select population. By definition he or she has survived compared to others of similar or younger age. Furthermore, that person has approximately 20 percent more years of life remaining before death occurs. Not only is the older adult part of a select population who have "made it" but they tend to perceive their health as good or excellent (8).

Shanas and Maddox (14) in their insightful discussion of aging, health, and health resources caution us to distinguish between illness and illness behavior. A person may or may not go to bed with a complaint or symptom. He or she may or may not go about their usual affairs. Thus one may be ill but not show illness behavior, or in the case of so-called "malingering," one may not be ill (that is, not have observable symptoms) and act sick. Put another way, health in the aged has been defined in at least two ways. One way is to render a judgment on the basis of the absence or presence of symptoms based upon self-report, physician's assessment, clinical test, etc. This is the so-called medical model.

An alternative way of defining health among the elderly is based upon level of functioning. The World Health Organization Advisory group states ". . . health in the elderly is best measured in terms of function; . . . degree of fitness rather than extent of pathology may be used as a measure of the amount of services the aged will require from the community" (14, pp. 596-597). There is some evidence that the older adult adapts the perception of his/her health to that which is possible or feasible. That is, the older individual's health aspiration changes over time. A standard which was appropriate in youth is modified in older age (15).

The two models, the medical and functional, are not irreconcilable. Evidence exists that the older adult's self-assessment of health correlates well with physician's ratings of that same individual (8, 14). Thus how the individual perceives his health and ability to function are part and parcel of the same package. We suggest that HPERD can positively mediate an older person's functioning, perceived health and, in some cases, symptoms.

It should come as no surprise to HPERD professionals that the foremost predictors of life satisfaction are socio-economic status and personality; however, other strong predictors are perceived health, activity, and intimate friendships above and beyond one's family (3, 4, 7, 10).

While HPERD programs can do little about directly influencing socio-economic status, one might suggest that they have the capacity to provide the environment where a "happy" personality may flourish. On the other hand, a theme repeated throughout this volume is the testable hypothesis that HPERD programs can directly influence perceived

health, activity levels, and enjoyment and provide the environment allowing friendships to develop and ripen.

Recently, the concept "successful aging" has come to be equated with life satisfaction or morale. Palmore, using the data from the first Duke Longitudinal Study of Aging, established criteria for successful aging. These were survival to age 75 years in good health and a feeling of happiness (10). The best predictors of successful aging were initial health (physician rating) and happiness, which correctly predicted 74 percent of the sample. The strongest explanatory factors were secondary group activity (defined as activity with friends) and physical activities. Palmore concluded that this and other research support the activity theory of aging. Parenthetically, activity theory states that the older person who remains active will age successfully, be happier, etc.

Disengagement theory is often described as the opposite side of the coin. It states that as the individual grows older, both the individual and society mutually disengage from one another. Here, death is the pervasive theme. It implies that society must be structured in such a way to permit its functioning regardless of the death of its members. Thus society gradually disengages from the individual by means of social expectations, sanctions, responsibilities, and social role changes, etc. For example, retirement and lesser expectations of older persons compared to younger people are normative in our society. The individual, in turn, is socially "excused" from many social tasks or responsibilities as he/she ages. However, in testing the theory, subsequent research indicated that disengagement theory is both process and goal or end (9). By definition, as death approaches, one disengages physically and

psychologically from worldly concerns. Death is disengagement par excellence (10; see 5, Ch. 5 for a discussion of psychosocial theories of aging). Yet, activity and disengagement theories are not independent of one another. Apparently, activity is related to perceived satisfaction with life and successful aging. Still the time will come when the individual and his/her social world must disengage from one another. There is no evidence of any physical fitness, health, or leisure regime ever being able to ward off or prevent death. Thus the goal for HPERD in working with the aged, the seriously ill, and the dying is not necessarily the improvement or maintenance of physical fitness or health--it may be to help the person enjoy one's remaining days (for a further discussion see the chapter on death and dying).

Unfortunately, no one has linked together activity and disengagement theories. Activity needs to be viewed on a continuum which is vital to the human condition but which diminishes with old age and sickness and ultimately ceases at death. HPERD needs a pharmacopoeia of prescribed activities designed to the individual with aging, illness, and other problems. There simply comes a time when doing push-ups and sit-ups to improve physical efficiency is inappropriate for and even harmful to the individual.

On the other hand, some sort of activity may be helpful to the aged, the sick, and the dying. Apparently, activity, intimacy, and sense of a good life are the sine qua non of successful aging (3, 4, 7, 10, 14). It may be hypothesized that they are the prerequisites to a good death. Successful aging, as a concept of value, needs to be broadened to include all of the life span including dying and death.

Health, activity, and providing friendships are the stuff of HPERD. Our disciplines have always been concerned with improving health and well-being, and providing activity for all regardless of level of competence. The role of activity, dance, and play in stimulating and nurturing friendships and sense of camaraderie has been well known within the professions represented by the Alliance for years.

For some quixotic reason, HPERD has only recently discovered aging or gerontology. Rarely are the articles of HPERD-oriented academicians and researchers found in the gerontological literature. In a similar fashion, we are tardy and remiss in developing a body of knowledge which would allow us to be of service to the seriously and terminally ill, regardless of age. But the path is clear. Contributing toward life satisfaction, successful aging, and a "good" dying are a "natural" for us involved in HPERD endeavors.

We will have to prove ourselves to the gerontological establishment--we are the late comers. To this end this book is addressed. It is designed to provide a knowledge base for those who would teach or develop programs in gerontological HPERD. To develop and implement a knowledge base is an imperative for the field. Without it we may do more harm than good regardless of laudable intentions.

Terminology

The following definitions shall be used in this volume:

Age refers to the number of years accumulated beginning from the individual's date of birth.

Age-associated change refers to those biological, social, and/or psychological changes where the probability of their occurrence increases

with age. For example, the probability of contracting cancer, becoming depressed, suicide, etc., increases with age. However, not all aging people develop cancer or become depressed or suicidal.

Age-caused change refers to those phenomena which are practically universal among older populations, e.g., change in quality of collagenous tissue; decremental decrease in visual and hearing activity; artnritis; and decremental decrease in strength, power, flexibility, endurance, and reaction time.

Age cohort refers to a population of individuals born during the same year. Cohorts differentiated by birth are conventional in the construction of life tables. Cohorts differentiated by five-year spans are conventional in research where census data are used (8a). At any given point in time, a society can be described as a collection of cohorts succeeding one another as they move through the life cycle (8a).

Age-exacerbated change refers to that phenomenon which is worsened by increasing age. For example, in general, the child who contracts pneumonia, in our society, generally recovers in a short time with few aftereffects. However, pneumonia is a direct or indirect cause of death among elderly persons. An example of penumonia as an indirect cause of death is frequently found among those with cancer. Apparently, cancer may weaken the defense system of the body so that pneumonia develops. Cause of death is really pneumonia, not cancer. Yet, the pneumonia would never have developed had it not been for the debilitating effects of cancer.

Aging refers to the regular changes that occur in mature humans living under representative environmental conditions as they advance in

chronological age. Aging suggests within individual or age cohort changes over time. Aging is a process and is not to be confused with old age.

Biological age is an estimate of the individual's present position with respect to his/her potential life span.

HPERD refers to the academic-professional areas included under the umbrella of the Alliance, that is, health education, physical education, leisure and recreation, and dance. Dance and creative movement are used interchangeably as are leisure and recreation.

HPERD programs refer to HPERD activities, courses, programs, and services designed to serve the older population.

Leisure/recreation refers to any non-work activity freely selected by the individual and which is associated with fun, enjoyment, and pleasure.

Older adult, aged, and elderly are meant to be descriptive rather than definitive. It is recognized that no definition of old age is without fault and can lead to stereotype. Thus we hesitate to adapt any demarcation year such as age 65 years to connote the beginning of old age because of within age cohort variation. Some people age 65 years and older are extremely youthful while others are old by any definition. For administrative purposes, age 65-70 years is often used to denote the beginning of "old age" (e.g., in the case of retirement age) (9a). In discussing the increase in the number of life periods over the life course, Neugarten and Hagestad (9a) cite Neugarten's concept of the "young-old" and the "old-old." The "young-old" are generally drawn from the 55-75 year age group, who are relatively healthy and vigorous,

relatively comfortable in economic terms, and relatively free from parental and work responsibilities. On the other hand, the "old-old" are older and more vulnerable to the vicissitudes of life.

Psychological age refers to the adaptive capacities of the individual, that is, how well one adapts to changing environmental demands in comparison with the average. Functional age, related to psychological age, is the individual's level of capacities relative to others of his/her age for functioning in a given human society.

Social age refers to the roles and social habits of an individual with respect to other members of a society. Compared with the expectations of his/her group and society, does an individual behave younger or older than one would expect compared to others of his/her chronological age?

Basic Assumptions

The following assumptions apply to the field of gerontological HPERD:

1. Education and/or program development in HPERD for the older adult or any other population is based upon an ever-accumulating body of knowledge.

2. Physical activity, health, and friendships are powerful predictors of life satisfaction and successful aging, and HPERD can provide the means allowing their attainment.

3. Older people are capable of and interested in activity learning and may reap benefits throughout the lifespan almost to the point of death.

4. Older people, like anyone else, differ in their attitudes, needs, desires, and behavior, including need for HPERD programs.

5. The teacher/program director is knowledgeable in HPERD and gerontology and able to integrate the two.

6. This collection of modules is only a guide designed to motivate and aid the HPERD teacher/program director toward the acquisition of further knowledge, skills, and understanding.

Theoretical Perspective

While there are several biological (auto-immune, crosslinkage, etc.) and psychosocial (disengagement, activity, etc.) theories of aging, one that provides an appropriate way of viewing data is a variation of stress theory (12, 13). Stress theory suggests that the human condition is one of adapting to a variety of stresses throughout one's lifetime. The only stressless state is death. Death occurs due to the inability of the human organism to adapt to stress. Over time, due to ravages of one or many stresses, an organ or set of organs fails to function, leading to death. Life is a constant process of attempting to maintain homeostasis or equilibrium. Physiologically the internal environment of the body strives to maintain constancy. The internal environment is conservatism par excellence. It relishes the status quo, and shuns the unpredictable and spurious. Body temperature is one example. Regardless of the outside temperature our body temperature remains constant at around 98.6 degrees Fahrenheit. In the case of extreme cold, the body attempts to adapt to the stressor of cold by shivering, changes in cardiovascular functioning, etc. Should the body fail to adapt, then collapse or exhaustion, that is, death, would occur. If the individual adapts by donning additional clothes, returning to a warmer environment, or by

increasing body temperature by exercise, then temporary or permanent adaptation occurs. Apparently, the body strives to maintain equilibrium and avoids disequilibrium.

On the psychosocial level similar phenomena seem to occur. One either adapts to the stresses of life or becomes exhausted. For example, the death of a beloved other person is generally considered a powerful stressor which increases the probability of premature mortality and morbidity among the bereaved (6, 11). On the other hand Eisenstadt (2) found that early childhood bereavement over the death of a parent was significantly related to later creativity and genius. Why is it that some people adapt in "unhealthy" ways while others adapt to the same stressor by apparently growing and learning?

Look at the paradigm:

$$S \longrightarrow SR \begin{matrix} + \\ - \end{matrix}$$

where S represents a stressor or set of stressors, SR represents the stress response, and the + or - indicates that the stress response may be either healthy, unhealthy, debilitating, or leading to growth and, further, that these responses can be expected to fluctuate over time. The question may be asked, What factors determine whether one responds in a positive or negative way? Why is it that Friedrich Nietzsche, the German philosopher, was able to say, "That which does not kill me makes me stronger," while others suicide over the same set of stressors?

Apparently, there are mediating variables which influence the stress response so that the paradigm should now read:

Personality
Culture
Social support system (quality and quantity)
Socio-economic status
Health status
Cognition
    Intellect
    Beliefs
    Attitude
    Perception
HPERD services, programs, and activities

where S, and SR^{+}_{-} are the same as above, and MV refers to mediating variable(s).

Mediating variables affecting the response to a stressor or set of stressors include personality of the individual, his/her culture, quality and quantity of social support (e.g., friends), socio-economic status, health status, and cognition, among others. Under cognition would be included one's intellect, beliefs, attitudes, and most importantly, perception. Take the example of suicide. It is not how the other person, friend, or counselor sees the potential suicider's situation but how the world is viewed by the suicider-to-be that is of paramount importance. Thus empathy is extremely important in working with older people, or anyone else. We need to see the world through their eyes.

The contention here is that HPERD programs, services, and activities also may serve to mediate stress. The public health model suggests at least three ways this may occur. The first is called preventive intervention and is analogous to education. It is future oriented, that is, the education is directed to learning to deal with stressors when they occur in the future.

Secondly, it is hypothesized that HPERD programs, services, and activities can serve to intervene to affect the response to stress in the here and now. Activity, for example, has long been known as a means of reducing existing anxiety, tension, and depression. This is called intervention and is analogous to counseling/therapy/treatment to mediate stress occurring in the present.

Finally, HPERD may serve a postventive or rehabilitative function. Often HPERD programs and services may be therapeutic after suffering a coronary, death of a mate, or amputation. It may be the means to providing meaning to life, increased morale, and improved self-concept.

HPERD can affect the response to stress by teaching people how to live with the stresses of life. An old saying is if one must live in a jungle of tigers, learn how to live with tigers. For example, the HPERD professional can teach the air tower controller (a stressful occupation) how to reduce stress during slack moments, the need to recharge one's batteries by whatever means are appropriate for the individual, and the need to prevent occupational "burnout."

The most difficult task, one which the country as well as HPERD has failed to address, is the significant reduction or removal of what might be called the deathogenic stresses within society. Deathogenic stresses are those psychosocial-environmental factors which increase the probability of death and/or illness for all society including the aged. They include unemployment, hunger, poverty, social isolation, overcrowding, environmental pollution, crime, and war, to name a few.

An example may be helpful. Suicide is age-related (11). That is, the probability of suicide increases with age. Suicide is almost

non-existent among young children, increases dramatically among adolescents, nears its peak at age 55 years, and continues to increase slightly up to age 85 years. Why do old people suicide? What are the deathogenic factors involved? Some explanations have included such concepts as loss of meaning to life; increased sense of helplessness and hopelessness; sudden and unwanted change or loss in terms of social role, residence, health, or income; and number and quality of friends and close relatives, etc.

HPERD can do much to prevent suicide. It can change a bereaved person's morbid adaptation to the death of his or her beloved. HPERD can provide a meaning of life. HPERD may provide the means to joy, friendships, and enhanced sense of competency. Those are lifegenic qualities. The HPERD teacher/program director asks, How can my course/program reduce deathogenic stresses while enhancing the lifegenic qualities for older people? To that end this volume is directed.

Target Population

The ultimate beneficiary of this volume of modules is the non-institutionalized older person. However, the need for systematic, planned HPERD programs for the institutionalized aged and the seriously and terminally ill is recognized as a need still unmet. Perhaps with modification and consideration given to safety and medical needs this volume may be found useful for those who would work with those who do not fall in the category of "healthy" older adults. Yet there are differences between working with the seriously ill or dying compared to the healthy. One factor is time. With those who are not dying, time is of little

concern. One can work toward goals without great worry over time running out. That is not true for the dying. Time is running out, often rapidly.

Reduction of pain and suffering are also goals with which the HPERD person working with the terminally or seriously ill person would be concerned compared to the healthy individual.

Intended Audience

This volume should be useful to the actual or potential teacher of HPERD courses concerned with the aging, aged, and dying person. Similarly, this volume should also be of value to the director or staff of actual or potential HPERD programs.

The Format

The volume is divided into three sections. The first provides the foundation for an understanding of gerontology. It includes fundamental concepts within the areas of sociological, physiological, and psychological aspects of aging, health problems, and nutritional status of the older adult.

The second section presents modules on the content areas of creative movement, general fitness, health education, and leisure. It serves to "follow-through" and implement the basic gerontological education presented in the first section.

The third section, the appendix, consists of two parts: The first includes selected resources such as films, journals, organizations, etc., while the second includes selected syllabi of courses and programs in gerontological HPERD, both selected to be helpful to the reader.

The format of each module includes introduction, purpose and objectives, major and minor concepts, appropriate learning activity with

special emphasis on integrating the concept with HPERD, and suggested resources.

Each module was initially submitted by someone knowledgeable in the field. They were then edited, modified, and usually rewritten in an attempt to enhance quality and consistency of style and substance. Thus the final outcome is really the result of a collaboration between many generous and knowledgeable people who gave of their time and talents to develop this first effort to integrate gerontology and HPERD.

Implementing the Materials

The basic materials in this book are in modular form. By definition a module is a standard, a measure. Thus the modules are designed to serve as a systematic standard for education in gerontological HPERD for the intended target population. However, the modules allow for modification. In fact, because the modules are presented in outline form, they demand elaboration. In short, the modules present a basic gerontological HPERD curriculum which may be adapted and modified in many ways. For example, the module may be used:

1. In its present form as the basis for a formal academic course for educating students in gerontological HPERD.

2. In one or more "sets" to fashion a curriculum complementing an existing course.

3. As a complete or supplemental curriculum for continuing education for agency or organization staff.

In conclusion, this volume is also seen as a possible stimulus for the development of more traditional texts in gerontological HPERD. To

date no such volume or volumes exist which integrate gerontological and HPERD concepts, data, and practice. Also it is hoped that this volume will be updated and modified to suit the needs of the HPERD professions and disciplines. Thus your comments and suggestions would be well received by the Alliance itself or the National Committee on Aging chaired by Rosabel S. Koss, Ramapo College of New Jersey, Ramapo Valley Road, P.O. Box 542, Mahwah, N.J. 07430.

REFERENCES

1. Cumming, E. and Henry, W., Growing Old: The Process of Disengagement, New York: Basic Books, 1961.

2. Eisenstadt, J., "Parental loss and genius," Amer. Psychol., 33(3): 211-223, 1978.

3. Flanagan, J., "A research approach to improving the quality of life," Amer. Psychol., 33(2):138-147, 1978.

4. George, L., "The impact of personality and social status factors upon levels of activity and psychological well-being," J. Geront., 33(6):840-847, 1978.

5. Hendricks, J. and Hendricks, C., Aging in Mass Society: Myths and Realities, Cambridge, Mass.: Winthrop, 1977, Ch. 5.

6. Holmes, T. and Masuda, M., "Psychosomatic syndrome," Psychol. Today, 8(11):71+, 1972.

7. Larson, R., "Thirty years of research on the subjective well-being of older Americans," J. Geront., 33(1):109-129, 1978.

8. LaRue, A., Jarvik, L., and Hetland, M., "Health in old age: How do physicians' ratings and self-ratings compare?," J. Geront., 34(5): 687-691, 1979.

8a. Maddox, G. and Wiley, J., "Scope, concepts and methods in the study of aging," in R. Binstock and E. Shanas (eds.), Handbook of Aging and the Social Sciences, New York: Van Nostrand Reinhold, 1976, pp. 3-34.

9. Neugarten, B. (ed.), Middle Age and Aging, part 3, Chicago: University of Chicago, 1968.

9a. Neugarten, B. and Hagestad, G., "Age and the life course," in R. Binstock and E. Shanas (eds.), Handbook of Aging and the Social Sciences, New York: Van Nostrand Reinhold, 1976, pp. 35-57.

10. Palmore, E., "Predictors of successful aging," The Geront., 19(5): 427-431, 1979.

11. Schoenberg, B., et al., Bereavement: Its Psychosocial Aspects, New York: Columbia University Press, 1975.

12. Selye, H., The Stress of Life, New York: McGraw-Hill, 1956.

13. _____, Stress Without Distress, Philadelphia: Lippincott, 1974.

14. Shanas, E. and Maddox, G., "Aging, health, and the organization of health resources," in R. Binstock and E. Shanas (eds.), Handbook of Aging and the Social Sciences, New York: Van Nostrand Reinhold, 1976, pp. 592-618.

15. Tornstam, L., "Health and self-perception: A systems theoretical approach," The Geront., 15(3):264-270, 1975.

FOUNDATIONS OF GERONTOLOGICAL EDUCATION

MODULE 1: THE SOCIOLOGICAL ASPECTS OF AGING

INTRODUCTION

For our purposes, sociology is defined as the scientific study of people in their social context. It is the study of group behavior in terms of social interaction and integration and the processes involved. It is not the study of individual behavior which falls under the purview of psychology, although social psychology is the study of the interaction between an individual and society. Sociologists are concerned with such gerontological issues as:

1. What social changes occur as people age?

2. How do social factors such as age, socio-economic status, ethnicity, and sex affect morbidity, mortality, or health? How does society help or hinder successful aging?

3. On the basis of social variables, how can the elderly be distinguished from other age groups?

4. How socially integrated are the elderly, and what is the relationship between social integration and health?

5. What is the effect of aging on leisure behavior of older adults?

This module and the one on psychological aspects of aging address some of those questions.

It may be said that each age period from birth to death requires adaptation to (1) stresses common to all age cohorts, (2) stresses shared by some age cohorts, and (3) stresses unique to the particular age cohort. In this and other modules, special emphasis is given to the domain of stresses of separation, deprivation, loss, and unwanted change. Such

stresses are common to all age cohorts but may change with age in their type, quality, and effect. Thus in old age the probability increases of suffering such losses as death of mate and friends and unwanted change in health status, physical capacity, income, and social role. The effect of such stresses upon morbidity, mortality, life satisfaction, and successful aging of older persons as a social group is being and has been investigated. The effect of HPERD programs as a mediator of social stress as a practical and heuristic question is only now being recognized. Similarly, little research has been undertaken to investigate the effect of social stress upon choice of involvement in HPERD programs by older persons.

Thus a testable hypothesis is that HPERD activities/courses/programs are an intervention serving to increase the probability of a health response to stress for the older population--a theme echoed throughout this book. Further, it is hypothesized that HPERD activities/courses/programs serve to (1) contribute to the health and well-being of the older population, (2) improve one's perceived social role and status, and (3) reduce the sense of social isolation and abandonment.

This module will focus on the following major themes:

1. The aged are a distinct population identifiable by socio-demographic characteristics which are related to health and well-being.

2. Social stresses affect the health and well-being of the older population. Such social stresses are often "external," that is, they are perceived as beyond the control of the individual for the most part. On the other hand, social stresses are remediable by society since they are caused by society.

3. Appropriate HPERD programs may serve to mediate, healthily, social stress as well as function as a positive, healthy stressor.

The learning activities listed under each concept serve to integrate sociological concepts with HPERD course/program development.

OBJECTIVES OF THE MODULE:

On completion of this module the HPERD professional should be able to:

1. Understand and identify the social and demographic characteristics which distinguish older age groups from young age groups.

2. Understand and be able to describe the social stresses unique to the older population.

3. Understand the changing leisure patterns and their nature associated with aging.

4. Integrate aspects of the sociology of aging into either existing or new HPERD courses/programs.

I. Socio-demographic characteristics of the elderly population.

Concept I: The socio-demographic characteristics of the aged population are related to the social health and well-being of that population (2, 12, 13, 18). Besides age, socio-demographic characteristics traditionally include socio-economic status, sex, and ethnicity.

A. Aging of a population is due to decline in birth rate, decline in death rate, or both. Decline in birth rate decreases the number of young, thus increasing the proportion of the elderly. Decline in death rates of the elderly increases life expectancy and, consequently, the age of the population (18).

B. Relative to other countries, the United States is classified as "aged" by United Nations demographers because over 7 percent of its population is age 65 or older. The aged population in the United States is growing in terms of numbers and in proportion to the "young" (18).

C. More than twice the number of the "poor" exist among the elderly than among the rest of the population. Of non-white elderly, 50.2 percent are classified as "poor," compared to 17.9 percent of all elderly, and 8.0 percent of the total population (18).

D. Males have shorter life expectancies than females. Whites tend to have longer life expectancies than non-whites. The average life expectancy for both sexes and all ethnic groups combined is around 74 years (8). White females have the longest, while non-white males have the shortest life expectancy, approximately 78 years compared to 65 years, respectively (8). Such profound differences cannot be attributed to ethnic-genetic factors alone. The stark life expectancy differential between white and non-white populations is most likely highly related to economic status, which in turn relates to quality of health care, health knowledge, nutritional status, and health in general (2, 20, 25).

In terms of life expectancy alone, it does not pay to be born non-white male, or worse, a non-white male in our society (for further information see the module on psychology of aging).

E. Leisure behavior is affected by social demographic factors (12, 13, 18).

LEARNING ACTIVITIES:

Objective: To understand the population growth patterns of the elderly, their effect on health and well-being, and the implications for HPERD.

1. Identify the demographic characteristics of the 65, 75, 85, and 95 year age cohort. What is the proportion of males/females, income level, proportion of white to non-white Americans, education level, and health status?

2. Identify those demographic factors which predict short versus long life expectancy.

3. Understand, discuss, and/or implement the implications of socio-demographic characteristics of the older population to HPERD course development and/or program planning.

II. Aging and social stress.

Concept I: Unexpected and unwanted loss, deprivation, separation, and/or change are stresses which affect the health and well-being of the older population (2, 4, 6, 19, 22).

A. Age alone is not a good predictor of health, sense of well-being, life satisfaction, or successful aging. However, it is when combined with socio-economic status, personality, quality of friendships, and involvement in activity (1, 2, 13, 16, 21-24, 26; see also 2b in "Psychology of Aging"). The loss of or unwanted change in those factors is associated with poor health outcome.

B. Undesired change from social integration to social isolation is related to poor health (16, 19, 21; also see 4b in "Psychology of Aging").

1. Suicide is associated with age. Age combined with other factors such as poor health, poverty, sense of hopelessness and despair, being a male, alcohol misuse, and unwanted social isolation help predict suicidal behavior (9, 19, 21, 22).

C. Timing is a factor which affects the perception of an event as a social stress. There is a "time" for marriage, for parenthood, for choosing one's life's work, for retirement, for children leaving home, and for death. When events occur "off time" they may be stressful (22).

D. Loss within the social context such as the death of a significant other (family, colleague, friend, or pet) is related to premature morbidity and mortality as well as to personal growth (5, 15, 19, 22).

E. Loss of employment or forced retirement is associated with poor health outcome (4, 26).

F. Forced or undesired change of residence is associated with poor health outcome (4, 16).

G. Downward change in income level and low economic status are associated with poor health outcome (2, 4, 20, 21, 25).

Concept II: To a large extent, society determines the array of possible responses to social stress (1, 21, 22; see 4b in "Psychology of Aging").

A. Society tends to stratify itself by age. Each age has its own age status and norms which define expected or preferred behavior (1, 21, 25). Aspirations concerning health, activities, and accomplishments tend to change with age.

B. The behavior of older people is affected by their perception of societal attitudes toward them (15, 23; see 35 in "Psychology

of Aging"). Some societies, like individuals, apparently have the capacity to foster closeness and high affection within themselves, while others do not. This capacity seems to be unrelated to available food supplies or other basic survival needs (15).

1. Unwanted isolation is related to poor health outcome (21, 22; see 2b-c and 10a in "Psychology of Aging"). Thirty percent of those age 65 and older live alone, with non-families, or in institutions. Seventy percent of the elderly live with their families (16).

2. The medical care system tends to avoid those older patients who are poor, dying, inactive, or unattractive compared to those who are ill but not dying, mobile, and have attractive personalities or physical features (15, 19).

C. Associated with perceived hopelessness is despair, depression, suicide, and other poor health outcomes (11).

Concept III: Generally, older people adapt well to old age, but the variation is great (1, 21, 25).

A. With age comes experience in dealing with social and other stress and the ability to foresee stress (7, 22, 23).

B. HPERD programs may provide a means for helping the older person adapt to social stress (7, 17).

LEARNING ACTIVITIES:

Objective: To empathize and understand the effect of social stresses upon the aged and how they may be mediated by HPERD activities.

1. Identify the predictors of high morale, life satisfaction, or happiness among the aged population. Note the influence of sex, socio-economic, ethnicity, and education factors.

2. List and discuss the predictable and unpredictable social stresses which you have had to face up to now. To what stresses and crises must the older person adapt?

3. Describe the differences in social expectations for the person age 15 to the person age 75 years and for the dying person. Suppose a conflict between social expectations or "norms" and personal desires exists. What might be some possible stress outcomes?

4. Develop and/or implement an HPERD course/program which intervenes to reduce the stress of loss, separation, deprivation, and/or change.

5. Develop and/or implement an HPERD course/program which intervenes to increase the probability of health, life, satisfaction, or improved morale.

6. Assume the military draft has been reinstituted (a social stressor). Those men and women between the ages of 18 and 45 years are being conscripted. You receive your draft notice. If you are too young or too old, assume someone close to you is drafted. Write down your emotional reactions. Is the draft "timely" for you? Any sense of despair? Do you wish to run away or to "join up" immediately? Analyze the chain reaction of stress. How does conscription affect others in your social network? How might HPERD programs help you cope with your feelings?

7. Design and/or implement an HPERD course/program for those elderly labelled "widowed," "chronically ill," or with "end state" or "terminal illness" either in an institutionalized or non-institutionalized environment.

8. Analyze and discuss activity, play, and creative movement as means to developing intimate friendships, improving health, providing a meaning to existence, and reducing the impact of social stressors.

REFERENCES

1. Atchley, R. C., The Social Forces in Later Life, Belmont, Calif.: Wadsworth Publishing, 1977.

2. Brenner, H., "Estimating the social costs of national economic policy: Implications for mental and physical health, and criminal aggression," in Achieving the Goals of the Employment Act of 1946 - Thirtieth Anniversary Review. Vol. 1 - Employment, Paper No. 5, Joint Economic Committee, Congress of the United States, Washington, D.C.: U.S. Government Printing Office, 1976.

3. Havinghurst, R. J., "Leisure and aging," in A. M. Hoffman (ed.), The Daily Needs and Interests of Older People, Springfield, Ill.: Charles C Thomas, 1970.

4. Holmes, T. H. and Masuda, M., "Psychosomatic syndrome," Psych. Today, 8(11):71+, 1972.

5. Irelan, L. M., et al., Almost 65: Baseline Data from the Retirement History Study, U.S. Department of Health, Education, and Welfare, Social Security Administration/Office of Research and Statistics, 1976.

6. Jenkins, C. D., et al., "Social stressors and excess mortality from hypertensive diseases," J. Human Stress, 5(3):29-40, 1979.

7. Lowenthal, M. F., Thurnher, M., and Chiriboga, D., and Associates, Four Stages of Life, San Francisco, Calif.: Jossey-Bass, 1975.

8. Monthly Vital Statistics Report. Annual Summary for the United States, 1978, U.S. Department of Health, Education, and Welfare, National Center for Health Statistics, Hyattsville, Md., 1979.

9. Miller, M., Suicide After Sixty: The Final Alternative, New York: Springer, 1979.

10. Parkes, C., Bereavement: Studies in Adult Life, New York: International Universities Press, 1972.

11. Seligman, M., Helplessness, San Francisco, Calif.: Freeman, 1975.

12. Siegel, J. S., Demographic Aspects of the Aging and the Older Population in the United States, U.S. Department of Commerce, Bureau of the Census, Washington, D.C.: U.S. Government Printing Office, 1978.

13. Smith, B. K., The Pursuit of Dignity: New Living Alternatives for the Elderly, Boston: Beacon Press, 1977.

14. Vital Statistics of the United States, 1975, Volume II, Section 5, Life Tables, U.S. Department of Health, Education, and Welfare, National Center for Health Statistics, Hyattsville, Md., 1977.

15. Watson, W. H. and Maxwell, R. J., Human Aging and Death: A Study in Sociocultural Gerontology, New York: St. Martin's Press, 1977.

The following chapters are from R. Binstock and E. Shanas (eds.), Handbook of Aging and the Social Sciences (New York: Van Nostrand Reinhold, 1976), which is now available in paperback along with its two sister volumes: Handbook of the Psychology of Aging (edited by Birren and Schaie), and Handbook of the Biology of Aging (edited by Finch and Hayflick):

16. Carp, F. M., "Housing and living environments of older people," pp. 244-271.

17. Gordon, C. and Gaitz, C. M., "Leisure and lives: Personal expressivity across the life span," pp. 310-341.

18. Hauser, P. M., "Aging and world-wide population change," pp. 58-116.

19. Kalish, R. A., "Death and dying in a social context," pp. 483-509.

20. Kreps, J., "The economy and the aged," pp. 272-285.

21. Lowenthal, M. F. and Robinson, B., "Social networks and isolation," pp. 432-456.

22. Neugarten, B. L. and Hagestad, G. O., "Age and the life course," pp. 35-57.

23. Rosow, I. (ed.), "Status and role change through the life span," pp. 457-482.

24. Schulz, J. H., "Income distribution and the aging," pp. 561-591.

25. Shanas, E. and Maddox, G. L., "Aging, health, and the organization of health resources," pp. 591-618.

26. Sheppard, H. L., "Work and retirement," pp. 286-309.

MODULE 2: THE PHYSIOLOGICAL ASPECTS OF AGING

INTRODUCTION

Aging processes are studied on many levels, from the microscopic, cellular level to the anatomic, structural level. The gerontology student studying the physiology of aging is often surprised by the emphasis on the cell and its related theories. The understanding of systematic age changes rests upon knowledge of age-related and age-caused cellular changes. However, as Shock has noted, a comprehensive, valid theory of aging will have to be concerned with the total organism more so than with any one cell, organ, or system (51).

Generally speaking, the body's physiological systems decline with age. Yet how many of the changes are due to aging per se or to environmental and other effects remains unknown. Death, it may be said, is the capitulation of the biophysiology to stress or a set of stressors. Selye observed long ago that no one ever dies of old age. One or more organs, then one or more systems, simply fail to function. One weak link in the chain leads to death of the organism by so-called "old age." Why one organ compared with another capitulates to stress remains a question of interest to researchers.

For HPERD gerontologists, the question is how and to what extent can the theory and methods of our profession mitigate the unhealthy and enhance the healthy physiological changes associated with aging? Similarly, how and to what extent can HPERD theory and methods help the individual adapt to physiological changes associated with aging and old age?

In keeping with the AAHPERD tradition of stressing preventive, interventive, and postventive measures, this module will (1) present information necessary to educate the student about aging processes, (2) promote an awareness of bodily changes and suggest alternatives for healthier living, and (3) address inquiries about on-going physiological processes and how to cope with them.

This module will focus upon the following major themes:

1. Normal and pathological aging fall on a continuum of healthy aging.

2. Research on age-related cellular change is basic to understanding the physiology of aging and its theories.

3. Physiological systems change with age.

4. It is hypothesized that HPERD programs have some healthy effect upon the physiology of aging for some duration. No HPERD program can prevent the ultimate physiological dysfunction called death. It is further hypothesized that HPERD programs can serve to help the individual adapt to physiological age-related or age-caused changes.

The learning activities are designed, by and large, to help the reader translate each concept into HPERD programs.

OBJECTIVES OF THE MODULE:

Upon completion of this module, the HPERD professional should be able to:

1. Understand the basic physiological process of aging and some theoretical perspectives.

2. Be able to distinguish between normal and pathological aging whenever possible.

3. Integrate knowledge concerning the physiology of aging into HPERD program development.

I. Normal and so-called pathological aging fall on a continuum of health aging.

Concept I: Aspects of physiological aging labeled "normal" or "pathological" may be obvious in their extreme forms but difficult to distinguish otherwise.

A. Physiological changes in aging have been documented in the longitudinal research of such investigators as Shock (51, 52), Birren (7), and Palmore (45, 46).

B. In the Duke University Longitudinal Study of Aging Long-Lived, pathology-free individuals were found. The predictors of what Palmore (47) and others like Chebotarev (13) in the Soviet Union call "successful aging" (e.g., long-lived and free of pathology) were (1) be a non-smoker, (2) have a positive outlook on life and a positive self-concept, (3) have moderately good physical function, and (4) maintain a role in society.

C. A major characteristic of pathological change with age is the shift from acute to chronic disease (1). Often the fine line between "normal," "borderline," and "diseased" is difficult to discern. An example involves the normal increase in blood pressure with age (1). Some, but not all older adults develop hypertension, a chronic disease. If precursor, subtle clues were identifiable as aging occurred, then interventive actions could be executed. These "clues" are still being sought through research.

D. Obesity, stress, immunity, arthritis, and osteoporosis are some of the factors and dysfunctions associated with the pathologies of aging. Some of these, such as obesity, have serious implications for other factors such as diabetes mellitus, arteriosclerosis, hypertension, and varicose veins (62).

LEARNING ACTIVITIES:

Objective: To develop an awareness of one's predisposition to disease of old age.

1. Have each student fill out the life expectancy questionnaire provided in Can You Live To Be 100? (63).

2. Once life expectancies are determined, discuss the various components of the questionnaire with an emphasis upon eliciting a change in lifestyle or habit with regard to experience, relaxation, nutrition, and chemical intake (cigarettes, marijuana, alcohol, etc.).

3. Optional: Discuss the common causes of death in middle and old age (19). How many of these diseases can be prevented or "stalled" by a change in lifestyle or habit?

Suggested audiovisual aid: slide/audio cassette program, by Wayman Spence, M.D., "Leading Killers of Today," Spenco Medical Corp., P.O. Box 8113, Waco, Tex. A small pre- and post-slide show quiz is included in the teaching text. The slide program is designed to give insights and teach attitudes as well as facts. Permission has been granted to reproduce the teaching text for group use.

II. Research on age-related cellular change is basic to understanding the physiology of aging and its theories.

Concept I: The gradual loss of cells is a major characteristic of the aging body (51, 58).

A. Few specific cellular changes can be ascribed to aging per se with the exception of the intracellular accumulation of "age pigments" (lipofuscin) derived from in vivo studies (58). The limited proliferative capacity of cells (cultured in vitro), however, is an age-related phenomenon but not considered a definite age change (31).

B. Cell degeneration ultimately leads to cell death, followed by necrosis (morphological changes in the cell). Cellular changes occurring with age differ from those due to injury. In both cases, morphologic changes underlie the functional disturbances. If cell injury is severe enough, or the aging process sufficiently advanced, cell death will occur (58, 62, 49, 5).

C. Our body cells are categorized as labile, stable, and permanent. Labile cells reflect a high regenerative capacity (e.g., red blood and mucosal cells), whereby new cells continually replace old, "worn out" ones. Stable cells do not regenerate as rapidly (e.g., liver, kidney, and endocrine gland cells). Permanent cells, also the body's most specialized (e.g., nerve and muscle cells) do not divide to regenerate themselves (2).

D. Cellular organelles such as mitochondria, endoplasmic reticulum, lysosomes, and nuclei have demonstrated morphologic content or structural changes over time (22).

E. The role of age pigments* (lipofuscin) appears to be important in the aging process; however, the exact relationship between its accumulation and the phenomenon of biologic aging remains unknown. Accumulation of bits and pieces or mitochondria, endoplasmic reticulum, Golgi apparatus, and lysosomes within the cell are implicated in the formation of age pigments (58, 60, 22). Lipofuscin does not accumulate in all tissues. However, in tissues in which it does appear, its rate of deposition is consistent enough to make it a reliable index of chronological age (58, 60). Lipofuscin has an apparent universal occurrence in phylogeny, and its progressive and irreversible accumulation in postmitotic cells has been labeled a "basic law" of cellular aging (10).

LEARNING ACTIVITIES:

Objective: To understand and be able to visualize age-related cellular changes.

1. Invite a physiologist, cytologist, pathologist, histologist, or other specialist to give a slide presentation comparing old cells with young cells. What are the implications of such changes for HPERD program development?

2. Discuss how cellular change might affect and manifest itself in the aging of selected organs as well as the total organism.

3. Have slides made from biology books or journal article photographs that will exhibit structural changes in the cell and its organelles (49, for normal cell; 22, 58, 51, for aging cell). Overlays

---

*One note of caution is warranted: age pigments are NOT the brown spots that appear with age on hands, arms, etc.

for an overhead projector may be burned on a thermofax machine once a photograph has been xeroxed. These are as effective as slides.

4. Suggest reading material for undergraduates (19), and graduates (58, Ch. 22).

Concept II: The crosslinkage theory of aging has implications for degenerative disease and longevity.

A. Bjorksten's crosslinking theory, first described in 1942, finds crosslinkage responsible for many of the secondary and tertiary causes of aging (8). Cutler (17) implicated crosslinking as a primary cause of many aging processes such as loss of elasticity, sclerosis, and failure of the internal systems.

B. Crosslinkage reactions are the result of crosslinking agents found within the human organism or in the surrounding environment to which the organism is exposed. Examples of crosslinking agents are intermediate metabolites of the Kreb's cycle, metals such as copper and manganese, and ionizing radiation (8). These crosslinkage reactions are likened to the tanning of hides and the vulcanization of rubber (8).

C. Collagen, the most abundant of body proteins, has been the major body protein involved in this theory. Due to collagen's ubiquity, the obvious manifestations of crosslinkage can be disastrous.

D. Consequences of gradual but progressive crosslinking appear throughout the body and interfere with such factors as mobility due to decreased flexibility of muscle fibers and tissue oxygenation.

The rationale for focusing on crosslinking theory is based on (1) its popularity and acceptance in the field of gerontology and

(2) its implications for intervention. For example, since crosslinking agents can be free radicals (which are formed by preoxidative reactions), antioxidants can be administered to deter the crosslinking process (28). Oxidizing fats, such as polyunsaturates of the cell membrane, are also crosslinking agents. Simply stated, theorists have recommended the intake of antioxidants such as selenium and vitamin E and a reduction in the ingestion of both saturated and polyunsaturated fats, or complementing the intake fats with an antioxidant.

For more information on prophylaxis and therapy regarding crosslinking, refer directly to Bjorksten (8). Resolving one's own belief or having an opinion about the practice Bjorksten recommends will serve to prepare the teacher for the often asked question: Do you take vitamin E and/or do you believe that this will help deter some process of aging? Be prepared.

LEARNING ACTIVITIES:

Objective: To explore the implications of preventive, interventive, and postventive health behaviors.

1. On the basis of the material presented so far, ask the class to interpret the theory practically and with relevance to themselves, their parents, and their grandparents (30).

2. Discuss the ingestion of metals found in foods and water (29), the effects of solar radiation, and the status of vitamin E as an antioxidant (32, 25, 6). There are <u>considerable</u> differences of opinion, especially between the viewpoint of U.S. RDA and proponents of free-radical and corsslinkage theories.

3. As a health educator or other HPERD professional, discuss the implications of crosslinkage theory for your program.

III. Physiological systems change with age.

Concept I: Age-related changes in the cardiovascular system occur.

A. The predominant form of vascular changes associated with age is characterized by arteriosclerosis. Because of its universality in almost all animal species and because of its progressive onslaught with advancing age, it is considered an inevitable manifestation of aging (58).

Atherosclerosis, the specific name for alterations such as atheroma or plaques, is a type of arteriosclerosis. However, the terms often are used interchangeably. The approximate time sequence of the development of arteriosclerosis with respect to specific pathologic changes has generally been established in North America (58, 41).

B. In brief, the functional changes of the cardiovascular system are listed below. For an in-depth explication of each item, refer to the relevant sources.

Functional changes with age appear to include the following:

1. Decreased heart rate in response to stress.
2. Decreased efficiency of the heart as a pump.
3. Decreased velocity of contraction and relaxation of isolated heart muscle.
4. Decreased rate of cardiac hypertrophy.
5. Stiffened and dilated arteries.
6. Diminishing roles for elastic and smooth muscles in determining elastic properties (the latter all determined progressively by collagen).

7. Increased peripheral vascular resistance.

8. Increased organ perfusion, in general.

9. Increased tendency for blood pressure to rise, but not in all individuals and populations (22, 37).

C. An increase in blood pressure is a major concern of aging adults. Factors that would cause an increase in blood pressure with age are (58) (1) increasing arteriosclerosis and atherosclerosis and (2) decreasing renal blood flow.

A decreased cardiac stroke volume and an increasing volume of the aorta would tend to decrease blood pressure. However, other factors that change with age may cause blood pressure to increase (e.g., increased salt intake, stress, or obesity).

D. Does blood pressure change in progressive and irreversible ways in every individual?

Bender (4) looked at cross-sectional studies of American and European populations. The results generally showed an increase in systolic pressure with age and a slower rate of increase in diastolic pressure. Diastolic pressure also showed a leveling off or decrease in old age, resulting in increased pulse pressure. Longitudinal investigations by Norris et al. (44) confirmed "an increase in systolic pressure with age, and an increase in diastolic pressure between 20-29 years and 60 to 69 years but with an equivocal difference between the latter group and those 80 to 92 years old." They also noted that exercise caused increased systolic and decreased diastolic blood pressures without significant age differences.

E. DeVries and Adams concluded from their all-male study of increasing blood pressure at various workloads that the vasomotor response to exercise was not affected by age and that differences with age in blood pressure levels were manifestations of the increased peripheral resistance present at rest (20). Kohn (36, p. 293) states, "These data suggest an age-related sluggishness in cardiovascular reactivity that is apparent during postural change and recovery from exercise, but not in response to exercise."

F. Kohn (36) organizes cardiovascular disease into three categories: arteriosclerosis, hypertension, and amyloidosis. It is assumed that you are familiar with the definitions of the first two categories; hence only amyloidosis will be defined.

Amyloid is a mysterious substance which accumulates within the body and is associated with various diseases. In the cardiovascular system, amyloid is deposited between cardiac myofibers, beneath epicardium and endocardium, in heart valves, and in the walls of arteries, arterioles, and capillaries. It is unclear whether or not amyloid deposits are an aging process (36). Some reports have suggested that a form of amyloid may be a normal component of connective tissue and that diagnosed individuals have excessive amounts of this "normally occurring substance" (36, 64, 59).

G. Morphologic changes in arteries with age will not be discussed here. However, the most consistent age changes in arteries will be mentioned. They are: (1) the redistribution, thinning, and fragmentation of elastin and (2) the accumulation of collagen, calcium salts, and lipids (22).

In brief, the aging of collagen is characterized by progressive insolubility, increased chemical stabilization, and increased stiffness.

"Changes in the properties of collagen probably constitute the most definitive basic aging process that has been observed in mammals" (36, p. 311).

H. Increased stiffness of connective tissue may account for inefficiency of the heart to pump, the increased peripheral resistance with age, and the trapping of important cellular substances.

In summary:

1. The cardiovascular system was not designed for a very long life.
2. It contains fixed postmitotic cells.
3. It is rich in connective tissue that loses elasticity.
4. There is a poor blood supply to the media of arteries.
5. The system is subjected to continuous stress.

LEARNING ACTIVITIES:

Objective: To learn of the developmental aspects of cardiovascular functioning.

1. Investigate the developmental changes in the anatomy of the cardiovascular system. How does this system change with age? What are its implications for physical activity and for health education?

2. Investigate and discuss the developmental aspects of arteriosclerosis. View slides of normal and aged arteries. Discuss and describe the variations. What might be the implications for HPERD programs?

3. If one is interested in diseases of the cardiovascular system, use Spenco slide program on diseases of the heart. Although the program comes with an audio cassette, one may adapt the slides to the lecture.

4. Discuss preventive action in coronary heart disease. Teacher: be prepared to entertain physiological questions concerning the roles of obesity, diet, exercise, and stress upon longevity.

Concept II: Age-related changes in the nervous system occur.

A. Degeneration of the nerve cell body is reflected by (58) a loss of cells and a change in cell size.

The loss of neurons are many thousand per day throughout the latter half of life. The surviving neurons are atrophic and may show chromatolysis, fat, and lipofuscin accumulation. Certain ganglion cells increase in size due to the accumulation of materials such as fat and lipofuscin. Cells may also increase in size due to swelling (i.e., Perkinje cells (53)). Parenchymtous tissue of the brain is postmitotic; hence once destroyed, a cell does not replace itself.

B. Glial cells increase with age. This increase is postulated to represent a compensatory process of the brain to overcome morphologic and functional neuronal loss or neuronal changes due to aging (58).

C. Various forms of vascular degeneration are seen. An example of this is the perivascular plaques of Scholz comprised of amyloid (53). (See previous section for explanation of amyloid deposition.)

D. Macroscopically, the brain atrophies with age. In summary:

1. There is a decrease in brain weight (a brain at age 70 may weigh 160 to 200 g less than it did at age 20).
2. Gyri are narrowed.
3. Sulci are widened.
4. Cortulis is thinned.
5. White matter is reduced.
6. Ventricles and subarachnoid space are dilated.
7. Pia-arachnoid is more adherent than in the young.
8. Walls of the ventricles may be studded with granular excrescences (53).

E. The spinal cord is also affected. Ataxia of the aged is related to loss of nerve fibers in the dorsal columns and the spinocerebellar tracts. Also, some muscle weakness may correlate with loss of anterior horn cells. Other changes involve loss of fiber in spinal nerve roots and peripheral nerves. Changes in the axons and their myelination and Schwann cells may also occur. Spinal fluid protein, however, is not significantly changed in the elderly (58, p. 938).

F. Morphologic changes occurring in the arteries of the brain are similar to changes occurring in other arteries of the body. Degenerating smooth muscle is replaced by collagenous tissue. Failure of arteries to detract or retract is attributed to the fraying, fragmenting, and calcification of elastin fibers or to an increasing cross-linkage between elastin and collagen fibers that holds elastin fibers in a stretched position (10).

Changes in overall cerebral blood flow and oxygen consumption suggest rapid fall in the circulation and utilization of oxygen

in the brain from childhood through early adolescence. This is followed by a progressive but more gradual reduction later on (58). Interpretation of these findings has led scientists to indicate that the functional competence of the brain progressively declines, depending on metabolic and circulatory changes with age.

Timiras (58) points out that "arteriosclerosis of the cerebral vessels rarely constitutes an isolated process but is commonly associated with deterioration in other parts of the cardiovascular system." Thus the effects of degeneration of the cardiovascular system upon the central nervous system illustrate that age-related changes are complex in origin.

Practically speaking, proper nutrition and adequate activity can serve as interventive factors to maintain the functional integrity of the nervous system via the cardiovascular system.

G. Arteriosclerotic changes and the accumulation of metabolically inert intracellular pigments impair the respiratory activity of nerve cells. Thus, in a general sense, the aging brain can be viewed as hypoxic. Studies have indicated that intermittent hyperoxygenation (hyperbaric treatment) can materially improve cognitive functioning in the aged, although it does not reverse or slow down basic degenerative processes (58, 33).

H. Impaired excitation of receptor organs may be somewhat responsible for a decrease in response to various environmental stimuli as a result of the aging process.

Changes in the sense organs show variation and are progressive and gradual.

1. The eye: vision.

a. Eyes may be conceptualized as young or aged at any chronological age.

b. Certain progressive changes are physiologically based, such as loss of accommodation, drying and opacification of the lens, depigmentation of the iris, and loss of retinal reflexes.

c. Other changes, although not necessarily pathological, may begin earlier in life but assume a more malignant aspect with advancing age. Examples are glaucoma, lens opacities, high myopias, and vascular changes (22, 58).

d. As one ages, eyelids and surrounding skin become thinner, wrinkled, and more pigmented, exhibiting keratosis (58). Bags may appear below the lower eyelids.

e. Lacrimation increases due to increased susceptibility to cold, wind, and dust (58).

f. Characteristic changes of the lens, such as a decrease in lens metabolism and lessened permeability, impair transmission of light (58).

g. Timiras (58) points out that although age of onset varies widely, practically every person will acquire cataracts if they live long enough. Every lens opacity is a cataract, but its importance is critical when it interferes with vision.

h. The elderly have difficulty adapting to the dark and distinguishing light intensities (53). In order to compensate for impaired transmission of light, a decrease in adaptive response, and changes in degree of elevation of the eyes (53), simple recommendations can be made.

Preventive and interventive advice would include education about developmental age changes with emphasis placed on variation and individual differences of the aging human. Ignorance is not always bliss. Interventive measures would include eye exercises (14). At work, a rule of thumb may be to double light intensity every 13 years (12). Preventive measures are not always successful at maintaining or preserving functional efficiency once certain stages of deterioration are reached. However, education and explanation of certain disorders can mitigate anxiety over impairments, the need for surgery, and the recovery periods.

i. The most important nerve changes associated with senility are those caused by retinal and cerebrovascular diseases, accidents, and glaucoma (58). Results of the latter may produce pathologic excavation of nerves with loss of vision and visual fields.

2. The ear: hearing.

a. Changes in auditory acuity may be due to physiological degeneration and/or external influences (23).

b. The term presbycusis was coined in 1891 and refers to the progressive, bilaterally symmetrical reduction of hearing accompanying the natural aging process (11).

There are four types of presbycusis, characterized by the area of the ear which is affected by the disease (15, 35, 38):

i. Sensory presbycusis: atrophy of the organ of corti, which contains the sensory cells for hearing.

ii. Neural presbycusis: loss of neurons along the auditory pathway from the ear to the brain with corresponding loss in discrimination of speech.

iii. Metabolic presbycusis: atrophy of the lining of the sac that contains the hearing organ and is thought to provide it with nutrition and circulation. This produces a fairly uniform loss of pure tone.

iv. Mechanical presbycusis: stiffening of part of the hearing organ. Hearing loss increases as tones become higher.

c. Symptoms of presbycusis include:

i. Difficulty with high tones (high frequency loss).

ii. Time lag between receiving a signal and actually understanding it.

iii. Tinnitus (ringing in the ear).

iv. Vertigo (dizziness).

v. Recruitment (abnormal sensitivity to loudness).

vi. Atrophic changes to the ear.

d. Other factors which may cause difficulty in understanding speech are:

i. Loudness recruitment.

ii. Auditory fatigue.

iii. Slowing of central reaction time, particularly if it is fast or loud, or if the background is noisy.

In terms of intervention, one would probably want to speak slower and reduce or omit background noise when addressing a hearing impaired adult.

e. A blessing of old age is the lessened tendency toward motion sickness. This is partially the result of reduced labyrinth in sensitivity

3. Taste.

a. The number of taste buds is gradually reduced with increasing age. Approximately 80 percent of elderly persons have demonstrable hypoglusia. Other changes are:

b. For taste to be effective, a higher stimulation is needed in the elderly.

c. A reduced flow of saliva is reported.

d. Fissuring or furring of the tongue occurs.

e. Loss of elasticity in the mouth occurs.

4. Sensation.

a. Paresthesias, or pain in the hands and feet, occurs often in the elderly (53).

b. Decreases in sensitivity may be partially due to degenerative changes in the peripheral nervous system and nerve endings.

c. Deep sensation is impaired in the lower limbs. Some hypotheses presented to account for this change are:

i. Inadequacy of blood supply to the spinal cord, spinal nerve roots, and peripheral nerves.

ii. Damage to spinal roots.

iii. Dietary deficiency (thiamine).

iv. Cervical spondylosis, which also may account for symptoms such as paresthesias, muscle wasting in the upper limbs, and various degrees of spasticity and ataxia in the lower limbs (53).

5. Reflexes.

a. Deep reflexes are commonly impaired in the elderly, or they may be absent (as in the ankle jerk).

b. Studies have demonstrated a loss of functioning motion units.

c. A slowing of the maximum impulse propagation velocities in the motor nerve.

6. Speech.

a. Speech/sound production may be affected by lesions of the central or peripheral nervous system.

i. Speech intensity and duration are reduced.

ii. The vocal range is smaller, and quavering may appear.

iii. The tone may be high pitched, nasal, and monotone (hearing deficiency may also affect speech).

iv. A lack of sufficient breath due to altered posture or obesity may affect voice production.

v. Tone may be affected by loss of elasticity and hypertrophy of the laryngeal muscle.

vi. The sluggishness of the oral cavity may help to produce muffled sounds.

I. It would appear that the "global" declines of central nervous system (CNS) functions does not seem to be a necessary prerequisite to accelerated aging in general or to a shortened lifespan. Rather, aging in specific areas or systems of the CNS is capable of inducing sufficient asynchronicity to disturb the normal function of cells, tissues, and organs and to lead to precocious senility (58).

LEARNING ACTIVITIES:

Objective: To promote a better understanding of developmental and pathological nervous system and related changes due to age or other factors.

1. Discuss senile dementia versus pseudosenility (21). Stress the implication of preventive and interventive actions.

2. Describe and discuss pathologies of the nervous system. The Spenco slide program entitled "Neurological and Related Diseases" by Wayman Spence, M.D., may be of some relevance.

What are the implications of nervous system-related dysfunction or pathology to HPERD program development? How might HPERD programs serve to mitigate nervous system-related dysfunction or pathology? How might HPERD programs serve to help the older adult adapt to nervous system-related dysfunction or pathology?

Concept III. Age changes in the lung and respiratory system occur.

A. Structural changes that may occur include the following:

1. Calcification of costal cartilages.

2. Increased kyphosis of the spine.

3. Degeneration into vertebral discs and increased spinal curvature may give appearance of "barrel chest" (58).

B. Age-related changes in pulmonary function:

1. Age, sex, and height are three factors showing the highest correlation with lung volume, whereas weight and body surface area have been shown to be poor predictors in estimating lung volume.

2. Cross-sectional studies of the general population revealed that total lung capacity is less in older individuals. Since these cross-sectional studies could not separate the effects of (a) increased average height of the general population and (b) decline in height throughout later life, these data showed that measurements of total lung capacity are best predicted by height alone (43).

3. There is a decrease in vital capacity. The mean decrease reported is 26.4 ml/yr for males and 21.6 ml/yr for females (58). Although men have larger vital capacities initially, the rate of decline with age is the same for both sexes. The normal values reported for non-smokers in pollution-free environments were greater than those reported for smokers of urban environments.

4. Since vital capacity decreases with age and total lung capacity remains constant, residual volume must increase with age. The ratio of residual volume (RV) to total lung capacity (TLC) increases from about 20 percent at age 20 to 35 percent at age 60. This RV/TLC increase takes place predominantly after age 40 (9).

5. Expansion of the rib cage accounts for 40 percent of the change in lung volume in younger people, while movement of the diaphragm is responsible for the remainder (3).

6. Maximal oxygen uptake in males peaks at age 20 and then declines with age (18). The proportional decrease in maximal oxygen uptake with age in females is similar when their initial exercise capacity is taken into consideration (3).

7. Maximal oxygen uptake has been shown to increase in both middle-aged and older men and women (61, 1).

8. Pulmonary diseases are greater in older individuals than in the general population. One cannot assess if this is due to aging per se, although the incidence of infections in pulmonary disease is greater in the elderly. This may be the result of associated debilitating diseases. Tuberculosis of the elderly is primarily the reinfection type (56). Pulmonary embolism is a frequent cause of death in the elderly,

which increases with age in a linear fashion (42). Emphysema and pneumonia are other pulmonary diseases. Lung neoplasms and chronic obstructive pulmonary disease are related to age and cigarette smoking.

LEARNING ACTIVITIES:

Objective: To reinforce by visual aid, anatomical and physiological changes in the lung and respiratory system due to normal aging and pathological aging processes.

1. Spenco slide program "Diseases of the Respiratory System" has a good sample of pathological diseases relative to aging. There is one slide of the normal lung. These slides may be shown in conjunction with a discussion on developmental physiology and ensuing pathology due to age, as with emphysema.

2. Provide for the class breathing exercises. Often students are unaware of their poor posture and breathing habits (14).

3. Discuss the hazards of both first- and second-hand tobacco smoke. Your local chapter of the American Lung Association can provide you with materials relevant to your discussion.

4. You are working with an aged individual with emphysema. Develop a systematic plan to help him or her either reduce the effects of this dysfunction or cope with it in a better fashion. First, it may be helpful to really understand the debilitating effects of emphysema. Contact your local American Lung Association to obtain a film describing the pathology. Another choice is to have a person with emphysema visit to talk with the group or class. Is all emphysema caused by overindulgence in smoking behavior?

Concept IV: Age changes in the gastrointestinal system occur.

A. There exists a decrease in acid secretions for both males and females who showed atrophic gastritis. However, other studies showed no difference in acid output at any age when results were not expressed against body weight (22).

B. Atrophic gastritis is a very common form of gastritis in the elderly. Histologically, atrophic gastritis is characterized by the thinning of the gastric mucosa and muscular wall. The gastric glands are destroyed or lost by infiltration of the mucosa with lymphocytes, eosinophils, and plasma cells. Gastric atrophy is characterized by an apparent loss of normal fundic glands (22).

C. Changes in the gastric physiology in the aged are summarized below:

1. Hyposecretion of acid, intrinsic factors, and pepsin.

2. Increased incidence of atrophic gastritis leading to the development of intestinal metaplasia.

Interestingly, atrophic gastritis increases the risk of carcinoma of the stomach twenty-fold over age-matched controls (22).

D. There has been no concrete evidence (except for Guth (26)) to show that diminished absorption of nutrients occurs in normal elderly persons (58). Reports do suggest that reduced intake and poor preparation of food are the causes for low serum vitamins and minerals as well as increased body loss and increased utilization.

E. Some common disturbances of the colon in the aging are diarrhea and diverticulosis. The major cause of diarrhea in the elderly is laxative abuse (16).

F. Studies about gross and morphological changes that take place in the liver with normal aging have shown conflicting results. The liver gets smaller in relation to body weight after 50 to 60 years of age. There are changes in hepatic enzymes that have implications for proper drug metabolism and detoxification processes. In summary, there does not seem to be an age-dependent liver function change.

G. Insofar as the pancreas is concerned, there is no significant difference in pancreatic exocrine function in the elderly (58).

H. Cholelithiasis is a common occurrence in the elderly. In the United States, approximately 10 percent of men and 20 percent of women between the ages of 55 and 65 years have gallstones (23).

LEARNING ACTIVITIES:

Objective: To develop an awareness of the diverse pathologies of the digestive system.

1. One may show the Spenco slide program entitled "Diseases of the Digestive System." Permission has been granted to reproduce for group use the script of this text.

2. Discuss the ramifications of laxative abuse. Are laxatives necessary? Can less harmful, natural substances replace the chemically based laxative?

Concept V. Age-related changes in the kidney and bladder occur.

A. Changes in renal physiology associated with aging include:

1. An early decrease in glomerular filtration rate and renal blood flow, as well as other renal functions.

2. A general increase in renal functioning leading to pathogenesis.

B. Shock (50) showed that between the ages of 20 and 90 renal blood flow is reduced to about half its original value. Glomerular filtration rate (measured by insulin clearance) also decreases progressively with advancing age and at practically the same proportional rate as blood flow (58). The excretory and re-absorptive capacities of the tubules are also impaired with aging.

C. The reduction in the number of nephrons and a progressive degeneration of those remaining nephrons in conjunction with a concomitant decline in transport mechanisms, membrane permeability, enzymatic activity, and responsiveness to hormonal action, etc., of the glomerular and tubular cells may be determining factors in the reduction of renal deficiency in aged individuals (58).

D. In terms of adaptive response and maintaining equilibrium of the acid-base balance, the older adult is less capable than the younger adult in restoring imbalances to normal.

E. In considering treatment and drugs for the older individual, one must consider that the metabolic and excretory capacity of the kidney is extremely reduced; therefore cumulative toxic effects can occur at a dose level easily tolerated by the young adult (58).

F. Bladder capacity decreases with age without any apparent anatomical cause. The frequency and value of residual urine increases.

G. The sensation of needing to urinate changes with age. The need to void occurs when the bladder is a little more than half full

in younger adults. In the aged the sensation may not occur until the bladder is almost filled to capacity, and in many individuals there is no sensation at all.

H. Urinary tract infections increase abruptly with age. In women over 65 and men over 70 the incidence of infection leaps ahead. Researchers suggest that two mechanisms responsible for the increased vulnerability to infections are

1. Gross anatomical change leading to retention and stasis.

2. The bladder, in some way, contributes to the sterilization of the urine and this effect is lost as a senescent change (22).

LEARNING ACTIVITIES:

Objective: To sensitize the student to the problems encountered by the elderly due to incontinence.

1. Discuss the problem of incontinence and the various methods presently being explored to regain control (i.e., biofeedback, drugs, etc. (22)).

2. When using this unit as part of a health education lecture, consider the dramatic psychological changes encountered by the older adult who has suddenly become incontinent due to illness, surgery, or stroke. Key issues should be body image, self-esteem, personal hygiene, and how others relate to the individual.

Concept VI. Age changes of the reproductive system occur.

A. The female.

1. Estrogen levels decline significantly in the two decades after age 40 and stabilize at low levels thereafter. The decline in estrogen levels has been related to the loss of follicles characteristic of the aging ovary. A decline in progesterone production is one of the earliest demonstrable endocrine changes, manifested by the increasing frequency of anovulatory cycles prior to menopause. The excretion of gonadotropins increases slightly with age in pre-menopausal women and markedly in menopausal and post-menopausal women.

2. Aging of female secondary organs include the following:

a. The uterus reaches its maximum weight at age 30. By age 50 it undergoes a 53 percent weight loss.

b. Collagen of the older uterus shows evidence of increased crosslinkage.

c. The vagina undergoes shrinkage and thinning of its walls.

d. The fallopian tube diminishes in size and motility.

e. Generally, during menopause and early post-menopausal years, mild atrophy of the external genitalia is followed by marked atrophy in senescence.

f. A loss of subcutaneous fat of the labia majora and minora are due to hormonal deficiency.

g. The clitoris diminishes in size.

h. In some cases, sclerotic or atrophic changes of the vulva are seen.

3. Changes in secondary sex characteristics.

a. Immediately following menopause, mild thinning of pubic and axillary hair and loss of subcutaneous fat occur. Marked changes occur during senescence.

b. Estrogen deficiency in post-menopausal women is characterized by flaccid breasts.

c. Alveoli gradually disappear and ducts diminish in size.

d. Size and erectility of the nipples also diminish.

4. "Menopause is a physiological event associated with the normal aging of the ovary" (58, p. 531). The mean age for menopause is the late forties. When it does occur in the late forties or early fifties, normal aging of the ovary is probably reflected. When menopause occurs earlier, influence of environmental factors such as malnutrition, overwork, and poor general health are reflected (58).

5. Climacteric, or "change of life," is used to describe the morphologic and physiologic changes in the body that are a product of cessation of ovarian function. The climacteric is that period of time that gives rise to the objective and subjective symptoms referred to as the "menopausal syndrome" (48, 22). These symptoms can be divided into three categories:

a. Disturbances in autonomic and vasomotor functions (e.g., hot flashes, hypertension, sweat, etc.).

b. Neurologic, neuropsychologic, and psycho-social symptoms (e.g., headaches, irritability, depression, etc.).

c. Symptoms of direct somatic origins (hormone deficiency and imbalance) (e.g., bursitis, diabetes, graying hair, etc.).

6. The reproductive period with the highest frequency of successful pregnancies is the third decade. Risks of miscarriage, stillbirth, neonatal death, etc., are highest in mothers in their thirties and forties.

B. The male.

1. A decline in the physiologic activity of the testis is experienced with age. However, the complete arrest of spermatogenesis is rare. The decline in spermatogenesis is accompanied by a reduction in the number and size of spermatozoa.

2. A gradual decline in the secretion of androgens may reflect the diminshing number of Leydig cells and their secretory capacities.

3. Changes in the sex organs include:

a. Decrease in weight of seminal vesicles.

b. Changes in the prostate. Atrophy and fibrosis are characteristic factors affecting the prostate late in life (50-60 years).

4. There has been some suggestion of a male climacteric based on a few cases. The subject is highly debatable. It has been suggested that when males do experience the "climacteric" it is at a later age (sixties) than women and is experienced to a lesser degree.

5. For post-menopausal women, the four phases of sexual response associated with coitus are fully attainable. The intensity and duration of each response are, however, decreased. In men, reaction patterns of erection, mounting, and ejaculation gradually decline with advancing age. Penile erection is more difficult to achieve, but once an erection is had, it is maintained for a longer period of time than in younger males (40).

LEARNING ACTIVITIES:

Objective: To dispel the myth that one is sexually "defunct" after age 50.

1. Discuss the practical implications of diverse outlets for sexual expression that HPERD programs can provide (i.e., the role of dance, exercise, etc.).

2. Identify practical suggestions one might give to older adults due to the physiological changes discussed (e.g., an older woman may need a lubricant, a change in lovemaking positions may be required due to impairments, etc.) (34).

3. If appropriate for the audience, discuss the implications for negative attitudes toward masturbation. Consider this topic important given the unavailability of a partner for most older women.

REFERENCES

1. Adams, G. M. and deVries, H. A., "Physiological effects of an exercise training regimen upon women aged 52 to 72," Geront., 28:50-55, 1973.

2. Althoff, S., Preparing Teachers, Students and Citizens to Deal Constructively with Problems and Potentialities of Aging. ERIC Clearinghouse on Teacher Education, January 1975.

3. Astrand, I., Astrand, P. O., Hallback, I., and Kilbom, A., "Reduction in maximal oxygen uptake with age," Appl. Physiol., 35:649-654, 1973.

4. Bender, A. I., "The effect of increasing age in the distribution of peripheral blood flow in man," J. Amer. Geriatric Soc., 13:192-198, 1975.

5. Bevan, J., The Simon and Shuster Handbook of Anatomy and Physiology, New York: Simon and Shuster, 1978.

6. Bieri, J., "Vitamin E," Nutrition Rev., 33(6), 1975.

7. Birren, J. E., Butler, R., Greenhouse, S., Sokologg, L., and Yarrow, Y., Human Aging: A Biological and Behavioral Study, Washington, D.C.: U.S. Government Printing Office, 1971.

8. Bjorksten, J., "The crosslinkage theory of aging: Clinical implications," Comprehensive Therapy II, 65-74, Feb. 1976.

9. Brody, A. W., Johnson, J. R., Townley, R. G., Herrera, H. R., Snider, D., and Campbell, J. C., "The residual volume: Predicted values as a function of age," Amer. Rev. Respiratory Diseases, 109:98-105, 1974.

10. Busby, D. E. and Burton, A. C., "The effect of age on the elasticity of the major brain arteries," Can. J. Physiol. Pharmacol., 43:185-202, 1965.

11. Carlyon, A., "Presbycusis," unpublished seminar paper, University of Maryland, College Park, Nov. 1979.

12. Charles, D., "Outstanding characteristics of older patients," Amer. J. Nursing, 61:80-83, 1961.

13. Chebotarev, D., "Fight against old age," Geront., 11:359-361, 1971.

14. Christensen, A. and Rankin, D., Easy Does It Yoga for Older People, San Francisco: Harper and Row and the Light of Yoga Society, p. 73, 1979.

15. Corso, J. F., "Presbycusis, hearing aids and aging," Audiology, 16(2): 146-163, 1977.

16. Cummings, J. H., "Progress report: Laxative abuse," Geront., 15: 758-766, 1974.

17. Cutler, R. G., "Crosslinkage theory of aging: DNA adducts in chromatin as a primary aging process." In International Symposium on Protein and Other Adducts to DNA: Their Significance to Aging, Carcinogenesis and Radiation Biology, Williamsburg, Va., May 2-6, 1975, in Bjorksten, J., "The crosslinkage theory of aging: Clinical implications," Comprehensive Therapy II, 65-74, Feb. 1976.

18. Dehn, M. M. and Bruce, R. A., "Longitudinal variations in maximal oxygen intake with age and activity," J. Appl. Physiol., 33:805-807, 1972.

19. Denny, P., "Cellular biology of aging," in D. Woodruff and J. Birren (eds.), Aging: Scientific Perspectives and Social Issues, New York: Van Nostrand Reinhold, 1975.

20. DeVries, H. A. and Adams, G. M., "Comparison of exercise responses in old and young men: I. The cardiac effort and total body effort relationship," J. Geront., 27:334-348, 1972.

21. Eisdorfer, C. and Friedel, R. (eds.), Cognitive and Emotional Disturbances in the Elderly, Chicago: Year Book Medical Publishers, Inc., 1977.

22. Finch, C. and Hayflick, L., Handbook of the Biology of Aging, New York: Van Nostrand Reinhold, 1977.

23. Freidman, D. K., Kannel, W. B., and Dawber, T. R., "The autopsy evidence of gallstones," Int. Surg., 109(1), 1959.

24. Glorig, A. and Nixon, J., "Distribution of hearing loss in various populations," Ann. Otol. Rhinol. Laryngol., 69:497-516, 1960.

25. Green, J., "Vitamin E and the biological antioxidant theory," Ann. N.Y. Acad. Sci., 1973.

26. Guth, P. H., "Physiologic alteration in small bowel function with age: The absorption of dxylose," Amer. J. Digestive Diseases, 13: 565-571, 1968.

27. Guthrie, H., Introductory Nutrition, St. Louis: C. V. Mosby Co., 1975.

28. Harmon, D., "Prolongation of life: Role of free radical reactions in aging," J. Amer. Geriatric Soc., 17:721-735, 1969.

29. _____, "Atherosclerosis: Possible role of drinking water copper," Clin. Res., 13:91, 1966.

30. _____, "Prolongation of the normal lifespan and inhibition of spontaneous cancer by Antioxidants," J. Geront., 16:247-254, 1961.

31. Hayflick, L., "Aging under glass," Exp. Gerontol., 5:291-303, 1970.

32. Horwitt, M. K., "Vitamin E: A reexamination," Amer. J. Clinical Nutrition, 569-578, May 29, 1976.

33. Jacobs, E. A., Winter, P. M., Olvis, H. J., and Small, S. M., "Hyperoxygenation effect on cognitive functioning in the aged," New Eng. J. Med., 281:753-757, 1969.

34. Johnson, W., Sex Education and Counseling of Special Groups, Springfield, Ill.: Charles C Thomas, 1975.

35. Kein, R. J., "How aging affects the ear," Geriatrics, 32(6):97-99, 1977.

36. Kohn, R., "Human aging and disease," J. Chronic Diseases, 16:5-21, 1963.

37. Landowne, G., Brandfonbrenen, M., and Shock, N. W., "The relaxation of age to certain measures of performance of the heart and circulation," Circulation, 12, 1955.

38. Lowell, S. H., "Presbycusis: What is it?," Laryngoscope, 87(10), 1977.

39. Magath, T. B., "Production of chronic liver insufficiency," Amer. J. Physiol., 59:485, 1922.

40. Masters, W. H. and Johnson, V. E., Human Sexual Response, Boston: Little, Brown and Co., 1966.

41. McGill, H. C., Jr. (ed.), The Geographic Pathology of Atherosclerosis, Baltimore, Md.: Williams and Wilkins Co., 1968.

42. Morrell, M. T., "The incidence of pulmonary embolism in the elderly," Geriatrics, 25:138-153, 1970.

43. Muiesan, G., Sorbini, C. A., Solinas, E., and Grasse, V., "Respiratory function in the aged," Bull. Physiol.-Pathol. Respir., 7:973-1009, 1971.

44. Norris, A. H., Shock, N. W., and Yiesngst, J., "Age changes in heart rate and blood pressure responses to graded and standardized exercise," Circulation, 8:521-526, 1973.

45. Palmore, E. (ed.), Normal Aging: Report from the Duke Longitudinal Study, 1955-1969, Durham, N.C.: Duke University Press, 1970.

46. _____, Normal Aging II: Reports from the Duke Longitudinal Studies, 1970-1973, Durham, N.C.: Duke University Press, 1974.

47. Palmore, E. and Jeffers, F. C. (eds.), Prediction of Lifespan: Recent Findings. Lexington, Mass.: D. C. Heath and Co., 1971.

48. Paschkis, K. E., Rakoff, A. E., Cantanow, A., and Rupp, J. J., Clinical Endocrinology, New York: Harper and Row, 1967.

49. Pfeiffer, J., et al., The Cell, New York: Time Incorporated, 1964.

50. Shock, N., "Age changes in renal function," in A. I. Lansing (ed.), Cowdry's Problems of Aging, Baltimore, Md.: Williams and Wilkins Co., 1952.

51. _____ (ed.), "The physiology of aging," Scientific American, 206:-00-110, 1962.

52. _____, "Physiologic aspects of aging," J. Amer. Dietetic Assoc., 56:491, 1970.

53. Smith, B. and Sethi, P., "Aging and the nervous system," Geriatrics, 109-113, May 1975.

54. Smith, D. W. and Bierman, E. L. (eds.), The Biologic Ages of Men, Philadelphia, Pa.: W. B. Saunders Co., 1973.

55. Spence, W., All texts for Spenco presentations, Leading Killers of Today, Waco, Tex.: Spenco Medical Corporation.

56. Stead, W. W., "Pathogenesis of the sporadic case of tuberculosis," New Eng. J. Med., 227:1008-1012, 1967.

57. Strehler, B. L. and Burrows, C. H., "Senescence: Cell biological aspects of aging," in O. A. Schjeidi and J. de Vallis (eds.), Cell Differentiation, New York: Van Nostrand Reinhold, 1975.

58. Timiras, P. S., Developmental Physiology and Aging, New York: MacMillan, 1972.

59. Timpl, R., Walff, I., and Weiser, M., "A new class of structural proteins from connective tissue," Biochem: Biophys. Acta, 168:168-170, 1968.

60. Toth, S. E., "The origin of lopofuscin age pigments," Exp. Gerontol., 13:19-30, 1968.

61. Tzankoff, S. P., Robinson, S., Pyke, F., and Brown, C., "Physiological adjustments to work in older men as affected by physical training," J. Appl. Physiol., 33:346-350, 1972.

62. Weg, R., "Changing physiology of aging: Normal and pathological," in J. Woodruff and J. Birren (eds.), Aging: Scientific Perspectives and Social Issues, New York: D. Van Nostrand, 1975.

63. Woodruff, D., Can You Live to 100?, New York: Signet Books, 1979.

64. Wright, J. R., Calkins, E., Breen, W. J., Stalte, G., and Schultz, R. T., "Relationship of amyloid to aging," Medicine, 48:39-60, 1969.

MODULE 3: THE PSYCHOLOGY OF AGING

INTRODUCTION

The psychology of aging is concerned with the understanding and prediction of behavior as influenced by age and aging. Traditionally, the psychology of aging is concerned with such questions as:

1. How does behavior change over time from birth to death? What is the nature of developmental behavioral changes?

2. What are the behavioral differences between and within different age groups (cohorts) and how might they be explained?

3. What factors or cluster of factors predicts how well an individual adapts to aging? Why is it that some people enjoy their aging process (call it self-actualization, ego-identity, life satisfaction, or healthy aging), while others fear aging more than dying or death?

4. What is the relationship between aging and learning and intelligence, motivation, neurological systems functioning, life satisfaction, perception, and adaptation to crises and stresses?

The key questions, of course, are (1) what behavioral and adaptive changes occur during the life span due solely to the aging process, (2) what changes are due to factors independent of aging, and (3) what changes are explained by the interaction of aging and other factors?

In general, nearly all behavioral functioning declines with age and ceases at death. Yet the variation in behavior with (individual differences) and between (age differences) age groups or cohorts is significant. One individual, age 60 years, may be vigorous and able to participate, even compete, in tennis or dancing with others 30 years younger. On the other

hand, an individual, of the same age, may be feeble and "old for his or her age" (an example of individual differences).

One's history makes a difference. A person born 60 years ago compared to one born 40 years ago has experienced a different historical period, which may affect behavior. The person born in 1920 weathered a massive economic depression, unlike the person born in 1940. Certainly, experiencing that profound stage of our history can be predicted to have some effect upon behavior.

Aging requires a series of adaptations to unpredictable and predictable stresses. The "meaning" and "perception" of the stress are crucial mediating variables which influence the quality and extent of the response to stress.

Perhaps, a role of HPERD activities is to serve to favorably mediate the stress response by affecting "meaning" and "perception." The goal of HPERD activities is positive health outcome, that is, an outcome that contributes to the survival and meaning-to-life of the individual. The exception is in working with the dying person. Here, the major goal remains to help provide enjoyment until death, but the goal of "survival" becomes irrelevant. The relevance of HPERD for the dying and bereaved persons is discussed in a module devoted to that topic.

Thus HPERD is conceptualized as able to provide a positive meaning to life and improve a dolorous perception of the environment by means of pleasurable, joyous activities and social interaction (19).

This module will focus around the following major themes:

1. Aging and old age may be described by a set of psychological characteristics; however, the variation is extremely wide. Many of the

psychological characteristics associated with aging and old age may be beneficially affected by HPERD preventive, interventive, and postventive programs.

2. The aging process may be exacerbated by stress.

3. The probability of a healthy response to stress may be directly or indirectly influenced by HPERD programs.

The learning activities listed under each concept serve to facilitate integration of the psychological concepts into HPERD program development.

OBJECTIVES OF THE MODULE:

On completion of this module, the HPERD professional should be able to:

1. Understand and identify selected psychological factors which characterize aging.

2. Understand and be able to discuss the psychological stresses and mediating variables of importance to older adults.

3. Integrate aspects of the psychology of aging into existing HPERD programs.

4. Modify existing HPERD programs in light of the psychological needs of older people.

I. The psychological characteristics of aging and old age, their variation, and the influence of HPERD programs.

Concept I: Central nervous system (CNS) and autonomic nervous system (ANS) decline are associated with aging in later life (35).

A. That decline varies in terms of degree and speed of occurrence but, nonetheless, reaches its nadir during dying and at death.

The extent which that decline may be lessened by HPERD activities remains a heuristic question of great individual and social importance. However, all HPERD and other interventions or postventions ultimately bow to death. Yet, evidence suggests that HPERD activities may serve to improve the meaning, perception, and quality of life to the time of death (16, 18, 19).

B. Quality of life is inextricably linked to the quality and quantity of the aging nervous system. The cellular changes of the aging nervous system both influence behavior and are influenced by behavior. For example, age-associated changes occur in the CNS in terms of quality of brain tissue, transmission of neurohormones, etc. The ANS which executes CNS processes through sympathetic and parasympathetic pathways also changes with age, e.g., structural changes in the hypothalamus, sympathetic and parasympathetic ganglia, and post-ganglionic nerve endings. Such changes may affect the individual's adaptive capabilities, homeostatic regulatory mechanisms, and vulnerability to pathology in old age, that is, functioning (23, 36, 46, 51).

1. Clearly established is the tendency toward slowness of perceptual, motor, and cognitive processes with increased age (33, 35, 36, 37, 40, 46, 54, 56).

a. Decrease in reaction time (RT).

b. Slowing of electroencephalogram (EEG) with special reference to alpha wave response.

c. Decline in "fluid intelligence" (thought to reflect neurological structure functioning) while "crystallized intelligence" (influenced by cultural learning) increases with age but in smaller

increments during the later years. Significant intellectual decline begins at around age 70 years, but variation is great. Up to age 50 years there is little or no decrement in IQ performance in the use of information and skills already achieved. Some decrement in IQ performance occurs when tests are speeded (timed) or tap non-verbal skills. Apparently, early intellectual ability, not chronological age, is the best predictor of the scope of intellectual change in old age.

d. The conditioned reflexes of the cardiovascular system, respiration, galvanic skin response (GSR), and gastric secretion are produced more slowly in older persons and reach lower values.

e. Certain sense modalities decline with age, e.g., vision, hearing, and taste.

2. Sleep patterns change with age. Fewer hours of uninterrupted sleep are required. The proportion of REM and slow wave stages of sleep is diminished (51, 53).

3. There is a general decline in physical fitness parameters such as strength (intensive work output but not light work output decreases with age) (2, 56), flexibility (2, 56), complex sensorimotor coordination (2, 56), and locomotor activity (43).

LEARNING ACTIVITIES:

Objective: To observe, and learn of the psychological changes associated with aging and old age.

1. Visit a shopping center, park, or any place where large numbers of people of varying ages congregate. Prepare a 4 x 7 Checklist of Behaviors. Arbitrarily establish categories of age: 26-45 (adulthood), 46-65 (middle age), 66-85 (old age), and beyond 86 (old, old age). Don't

worry if you are unable to accurately determine the individual's exact age since the purpose of this learning activity is to become aware of gross behavioral age (not aging) differences. Try to observe 10 people in each age category for a total of 40 people. Place the four age categories horizontally on the top of your paper.

On the left-hand border of your paper list these seven observable behaviors:

1. GAIT (record: quick, medium, slow, or shuffling).
2. REACTION TO STIMULI, e.g., moving to a green traffic light, stopping at a red traffic light (record: quick, medium, slow).
3. VISION (record: evidence of difficulty in seeing or glasses, or no difficulty in seeing or no glasses).
4. HEARING (record: evidence of difficulty in hearing or evidence of a hearing aid, or no hearing aid or difficulty in hearing).
5. STRENGTH AND MUSCLE TONE (record: evidence of good muscle strength or tone in upper arms, or poor muscle strength or tone in upper arms).
6. ENDURANCE OR STAMINA (record: evidence of good endurance, e.g., no shortness of breath or gasping after exercise, or evidence of poor endurance after exercise, e.g., shortness of breath or gasping).
7. INTELLIGENCE (record: good ability to carry on conversation and understand clearly expressed concepts, or poor ability to understand clearly expressed concepts or carry on conversation.

A. In general, can you make any generalizations for the four different age categories of those you observed? What were they? Was your 40-person sample special in any way? What is the danger in generalizing from your sample to <u>all</u> people ages 26-45, 56-65, 66-85, and older than 85 years?

B. Now look at each of the four age categories. Discuss the variation within each of the categories. Were there some people 65 years and older who did better than some of the younger people in the various behavioral categories? As an HPERD professional, what does this indicate to you in terms of program development?

2. Now let's try to gain an understanding of behavioral changes associated with aging. You will have to use your imagination. Think of an older person you have known for many years. It may even be yourself. Using the same Behavioral Checklist and the same age categories, recall how that person has changed over time. Have there been decremental changes over time, generally? Have there been some changes downward and some upward? What are the implications of your findings for HPERD course/program development?

Concept II: Advanced age in combination with poor health increases the probability of maladaptation (25, 41, 53, 55).

A. Most frequent psychiatric disorders among the aged are depression (usually episodic rather than chronic), followed by paranoia and hypochrondriasis.

Among the most frequent worries of older men and women were health "hassles," loneliness, rejection, lack of or quality of interpersonal relationships, finding a new mate, and sexual problems (42, 53). Such worries or anxieties may contribute to poor health.

B. As noted earlier, the incidence of suicide increases with age, especially among males. If suicide is related to despair, hopelessness, and absence of meaning to life among the aged, a role for HPERD is obvious: to develop theory and methods to relieve despair,

depression, and hopelessness and at the same time provide a meaning to life and living (16).

C. Pfeiffer (53), Lowenthal (50), and others state that the elderly need to retain function: physical activity, social contacts, and intellectual and emotional stimulation. Leviton and Santa Maria (19) describe and evaluate an HPERD program to meet the psycho-social needs of the elderly. Leviton (16) and Leviton and Santa Maria (19) also suggest that HPERD activities can serve as both means and end to reducing the desire for premature death, e.g., suicide.

D. Body image (how one perceives his/her body and its capabilities to perform) changes with time and may affect the meaning given life and death. The "aged" compared to the "youthful" body is little valued or desired in our society. Wrinkles, decreased mobility, loss of teeth, handicaps, and changes in tone and texture of muscle and skin all may combined to remind the aging individual that he/she is repugnant. With that knowledge may come fears over diminished control over one's life (independence) and ability to survive. Is it no wonder that suicide and depression are related to age in our society (6, 27, 16, 24, 4, 32, 26, 43, 50, 55)?

E. Generally, older people accommodate themselves to physical and health changes by a variety of coping techniques.

1. Expectations change with age. The former varsity athlete should not expect to compete on that level in old age.

2. Generally, the older adult adapts well by compensating for decline in physical or psychological capabilities. For example, older adults will take more time on performance tasks such as IQ tests, driving

a car, aiming, etc. The amputee or paraplegic generally compensates for loss of a limb or limbs by developing great strength and abilities in the functioning limbs.

3. HPERD activities may enhance the compensatory process and outcome.

LEARNING ACTIVITIES:

Objective: To understand and empathize with age-related dysfunction and maladaptation.

1. In order to understand the psychological problems in adapting associated with hearing loss, stuff your ears with cotton and function for a 24-hour period. Report your emotional and cognitive reactions.

2. Literally "hole" yourself in your room for a 48-hour (weekend) period. You are to have no social contact except the superficial, that is, during shopping, to obtain a newspaper, etc. You may use television or radio as you wish. In other words, become an involuntary social isolate. Analyze and report your emotional and cognitive states.

3. Discuss the development of an HPERD program to rectify the above sources of stress. How did isolation affect your functioning? How did you adapt? For how long could you endure isolation? What would be the emotional/cognitive price?

4. Look at pictures of yourself or your parents when they were "in the prime of life." What body changes have occurred? Do you wish your body was different? What aspect of your body would you change if you could? Why? Discuss the relationship between body image change and perception of old age and approaching death.

Concept III: There is some evidence that HPERD activities and other types of preventions, interventions, and postinventions can have a positive effect on some of the psychological characteristics of aging and old age. While no research has investigated the effect of HPERD activities on improving the quality of dying, some clinical evidence suggests that, indeed, this may be the case.

A. Apparently, specific training by older organisms can have an effect on specific functioning such as electroencephalogram (EEG) and reaction time (RT). Spirduso found older people showed less slowness of RT than inactive persons, younger or older. Murrell found practice improved RT. Woodruff demonstrated that biofeedback could serve as a training mechanism enabling older adults to control EEG (alpha wave) effects. Retzlaff and Fontaine showed that old exercised rats showed histological staining characteristics of spinal motor neurons similar to those of younger animals (35; see also 1, 2).

Improvement in one body system may positively affect another. Studies indicate that vital capacity of lungs is related to sensory, motor, and cognitive processes. Jalavisto, Lindquist, and Makkonen suggested that large vital capacity is related to strong muscular effort and motivation. On the other hand, reduced vital capacity may be an indication of mild hypoxia (oxygen deprivation) in the brain which, in turn, may be related to impaired neural function. The cause of such effects remains open to further investigation. The effect of less specific activities on CNS and ANS functioning such as HPERD provides the older adult (e.g., creative movement, gross motor and muscle activities, etc.) remains largely unknown (35).

B. Generally, the best predictors of life satisfaction, successful aging, etc., are high socio-economic status (adequate income) and perceived health. Other significant predictors often mentioned in the literature are activity (contrasted with immobility), quality and quantity of friendships (compared to forced or undesired isolation), and opportunity to enjoy sexual activity when desired (4, 7, 8, 22, 26, 53).

C. HPERD activities have some significant positive effect on improving perceived health and sense of well-being, quality and quantity of friendships, etc. The duration and stability of those effects remain to be determined (16, 19).

LEARNING ACTIVITIES:

Objective: To further empathize with the older person by experiencing unwanted, imposed physical limitations, and note their effect on psychological functioning.

1. The objective of this learning activity is to learn to empathize with some of the physical changes associated with aging and their effect on one's sense of well-being. You will need a partner, a blindfold, and a rope (a clothesline will do) cut into a two-foot length with the two ends tied into a knot. This is your "hobble." One partner is the "guide" while the other plays the older adult (OA). Place the rope around the OA's feet so that only a shuffle is possible. Render the OA sightless by placing the blindfold around his/her eyes. Now the OA becomes dependent upon the help of the guide. The task is to walk around for 15 minutes. Go up stairs, down stairs, and in and out of the residence, classroom, or office. After 15 minutes, change roles.

A. Report your feelings, frustrations, experiences both as OA and guide. Did you feel under stress? How? Why?

B. Discuss how you adapted to the loss of vision and restriction upon locomotion and range.

C. Discuss the importance of independence and its relevance to psychological health and integrity.

D. Discuss the importance of patience in working with the older adult. Why is it more important to empathize rather than sympathize with the older adult?

E. How might HPERD activities enhance the older person's sense of competency, independence, and adaptation?

II. The stressors associated with old age.

Concept I: Aging itself may be viewed as a complex of stressors or adaptations to stress (19, 20, 21, 23, 25, 29, 30, 31, 41, 42, 48, 49).

A. Ultimately, the organism must capitulate to stress as it reaches the stage of "exhaustion" or death. On the other hand, the aged person is part of a select population who has survived peers and those who are younger. Thus one could conclude that the aged person, by definition, has learned how to adapt to certain stressors associated with survival better than those of similar or younger age who have died. The question then becomes, What are some of the stressors which increase the probability of premature aging, death (mortality), or illness and disease (morbidity)?

1. The attitude of a society toward its older members strongly influences the self-perception of the aged and the behavior of younger members toward the aged (34, 41, 47, 50).

Negative attitudes toward the elderly may be stressful. Attitudes are culturally determined and may vary within and among cultures. Those societies which have the capacity for object relations and altruism seem to do better for the aged compared to those who are egocentric and/or self-seeking. Thus Oriental societies generally revere and worship their aged and their ancestors, while the Amassalik, the Thonga, and Fijians practice infanticide and gerontocide (killing of older members of a society) (47, 49). Such attitudes and practices seem to be independent of food supplies and other necessities of survival.

Humans think, perceive, feel, and act in the context of shared expectations, that is, societal expectations. Thus if a society fails to value old age, ethnic minority groups, females, etc., then those persons may be expected to be under more stress than those who fit within the idealized or desirable social role (47, 49).

B. Stress-related behavior may be predicted by age, sex, ethnicity, socio-economic status (SES), and personality. Yet the aged are not a homogeneous group. The aged are often more diverse than younger age cohorts (34).

1. Sex-related stresses include the high probability that the female more so than the male is widowed; single or formerly married female has a significantly lower income than her male counterpart; females suffer greater depression and loneliness; and males compared to females suicide more frequently, have fewer intimate friends, and have shorter life expectancies.

2. Ethnicity-related stresses include non-whites having lowered life expectancies compared to whites (in 1960, average life

expectancies for white Americans were approximately 68 years; 57 years for Mexican-Americans, and 65 years for non-whites); increased probability of being poor and unhealthy compared to whites; Mexican-Americans and non-whites tend to perceive themselves as old at a younger chronological age than do whites.

3. Low economic status (poverty) is related to a variety of forms of physical and psychological illness, and premature death. Low economic status accelerates the physical and psychological decremental changes associated with aging. One could say with great validity that poverty accelerates the aging process (25, 42).

4. Certain personality types apparently increase the probability of contracting coronary heart disease, cancer, etc. (7, 12, 42, 52).

LEARNING ACTIVITIES:

Objective: To learn to think in analytical terms of how HPERD activities might ameliorate the stress of aging and old age.

1. Develop a HPERD set of activities, course, or program with the goal(s) of improving reaction time, friendships, body image, self-concept, depression, confidence, or perceived health or sense of well-being.

2. Interview a group of older adults ranging in age. Determine the HPERD activities most enjoyable for them during their twenties and thirties. Then determine their favorite HPERD activities now. Distinguish between what older adults <u>would like to do</u> (idealized HPERD activities) and what they <u>actually do</u> (realized HPERD activities). Then determine what social, psychological, or physical-medical factors prevent them from engaging in their idealized activities.

Ask these same people to discuss how changes in HPERD activities and body image over time (that is, how one perceives the attractiveness of one's body and its capabilities to perform a variety of activities) affected their (1) view of life, aging, and death and (2) degree and extent of depression.

3. Considering points 1 and 2 above, conceptualize a developmental HPERD program for an individual from ages 30 to 85 years. How would the activities be modified over time to meet the psychological needs of the aging adult?

Concept II: With age comes the increased probability of those stresses which fall under the domain of loss, separation, deprivation, and unwanted change (11, 12, 13, 16, 19, 21, 30, 49).

A. Such stresses may include menopause, retirement, children moving away from home ("empty nest syndrome"), types of death of spouse and others, type and style of dying of self, illness and surgery, change in appearance, change in activities, and physical efficiency status (38, 40).

B. Unexpected or unpredicted stresses are more difficult for the older person to adapt to than predictable, expected stresses. Examples of the former are unexpected loss of employment, forced retirement, unexpected or unwanted death of a mate, forced or unwanted move to a new residence or nursing home, severe illness, surgery or amputation, loss of vision or hearing, loss of health, significant loss of income, unwanted change in social role (e.g., "married" to "widowed person") (11, 21, 42, 50, 53).

C. A stress is a stress because it is perceived in some way as potentially harmful, threatening, damaging, unpleasant, or overwhelming

to the individual's adaptive capacity. Whether a stimulus is perceived as stressful is related to the social context as well as the individual's capacities to cope with stress. "Capacity" is determined by the person's past experiences in dealing with loss and deprivation, perception of the event, intellectual capability, personality (e.g., copers vs. non-copers, sensitizers vs. repressers), health status, and educational level (12).

D. As noted earlier, the response to stress is a process and may be expected to change over time. The ideal goal for HPERD is to increase the probability of healthy outcome over both the short and long haul.

LEARNING ACTIVITIES:

Objective: To assess the impact of cumulative stresses on overall health of oneself and older adults.

Holmes and his colleagues (9, 10) found that cumulative stresses gathered over a one-year period significantly increase the probability of premature death or significant illness. Notice how nearly all of the stresses (life events) in the Holmes scale fall under the domain of loss, separation, deprivation, or unwanted change. For example, the event which they list as the most distressing is death of a spouse, which is worth 100 points. It is followed by divorce (loss of a mate, social role, and status). Why deaths of one's child or pet are not listed remains unknown, although it is expected they will be included in revised scales.

Your task is to:

1. Total over a one-year period your Social Readjustment Rating Scale score. If over 250 points have accumulated, have you suffered

deleterious or unhealthy physical or psychological effects? How did you cope with the crisis or stress?

2. Administer the Holmes Scale to both older (say, over age 65 years) persons and younger (say, below age 35 years) persons. Ask the same questions as in point 1. What have you learned? Did HPERD activities play any part in helping them adapt or cope? In your opinion could they have? How?

3. Visit a proprietary (for profit) and religion-affiliated nursing home. What stresses are the clients under, would you say? Is one environment more stressful than the other? How would you improve the environment so that it is less stressful, utilizing HPERD activities?

Concept III: HPERD and other activities may serve as preventive, interventive, and postventive modalities to increase the probability of an ultimately healthy outcome (19, 35, 5, 1).

A. Preventive intervention is analogous to HPERD and other educational efforts and is concerned with forewarning and preparing the individual to be better able to cope with stress in the future (16, 17, 18).

1. HPERD education should be developmental and lifelong.

2. An example is death education where one goal is to prepare the individual to deal with the consequences of death of a beloved other, that is, the stress outcome of grief and bereavement. Another goal is to educate the individual so that when seriously or terminally ill, control of the situation may be maintained as long as possible.

3. Other examples are preparing for retirement, widowhood, children leaving home, change in income status, physical efficiency, etc.

LIFE SCORE

HOLMES SCALE

You can detect a dangerous sequence of stressful events through the Holmes Schedule of Recent Experiences. The number assigned to each event is a measure of the stress it places on you. Note that many of these events should be happy ones — but change itself may be stressful, even if the change is for the better.

Dr. Holmes' research indicated that 80 percent of persons with scores greater than 300 suffered a serious illness within two years. Fifty-three percent of persons with scores between 250 and 300, and 33 percent of those with scores between 150 and 200, suffered similar illnesses. The ability of the Holmes Scale to predict serious illness demonstrates that unusual stress may be as much a risk to your health as high blood pressure. None of us can entirely avoid stressful situations, but by recognizing the importance of these changes, by trying to make them slowly and carefully whenever possible, we will be able to deal with them more effectively.

Check each item that occurred in your life in the last year. Write the given numerical value for each checked item to the left of the item. Add to obtain your total Holmes Score.

1)	☐	100	_____	Death of spouse
2)	☐	73	_____	Divorce
3)	☐	65	_____	Marital separation
4)	☐	63	_____	Jail term
5)	☐	63	_____	Death of close family member (except spouse)
6)	☐	53	_____	Major personal injury or illness
7)	☐	50	_____	Marriage
8)	☐	47	_____	Fired at work
9)	☐	45	_____	Marital reconciliation
10)	☐	45	_____	Retirement
11)	☐	44	_____	Change in health of family member (not self)
12)	☐	40	_____	Pregnancy
13)	☐	39	_____	Sex difficulties
14)	☐	39	_____	Gain of new family member
15)	☐	39	_____	Business readjustment
16)	☐	38	_____	Change in financial state
17)	☐	37	_____	Death of close friend
18)	☐	36	_____	Change to different occupation
19)	☐	35	_____	Change in number of arguments with spouse
20)	☐	31	_____	Taking on mortgage over $10,000
21)	☐	30	_____	Foreclosure of mortgage or loan
22)	☐	29	_____	Change in responsibilities at work
23)	☐	29	_____	Son or daughter leaving home
24)	☐	29	_____	Trouble with in-laws
25)	☐	28	_____	Outstanding personal achievement
26)	☐	26	_____	Spouse begins or stops work
27)	☐	26	_____	Begin or end school
28)	☐	25	_____	Change in living conditions
29)	☐	24	_____	Change in personal habits (self or family)
30)	☐	23	_____	Trouble with boss
31)	☐	20	_____	Change in work hours or conditions
32)	☐	20	_____	Change in residence
33)	☐	20	_____	Change in schools
34)	☐	19	_____	Change in recreation
35)	☐	19	_____	Change in church activities
36)	☐	18	_____	Change in social activities
37)	☐	17	_____	Taking on mortgage or loan less than $10,000
38)	☐	16	_____	Change in sleeping habits
39)	☐	15	_____	Change in number of family get-togethers
40)	☐	13	_____	Change in eating habits
41)	☐	13	_____	Vacation
42)	☐	12	_____	Christmas
43)	☐	11	_____	Minor violations of the law

Holmes Scale Total _____

Original Source: Thomas H. Holmes, M.D., "Social Readjustment Rating Scale," Journal of Psychosomatic Research, 1967, Vol. 11, pp. 213-218. Elmsford, N.Y.: Pergamon Press, Inc.

How long will you live?

Cancer of the Breast (women only)
If your mother or a sister has had cancer of the breast, score −4 _____

Glaucoma
If you have a parent, grandparent, brother, sister, uncle or aunt with glaucoma, score −2 _____

Gout
If you have a parent, grandparent, brother, sister, uncle or aunt with gout, score −1 _____

Ankylosing Spondylitis (a type of arthritis)
If you have a parent, grandparent, brother, sister, uncle or aunt with ankylosing spondylitis, score −1 _____

Family History Total _____

I	**Habits**	_____
II	**Stress**	_____
III	**Immunity**	_____
IV	**Personal History**	_____
V	**Family History**	_____
	TOTAL	_____
	Now Add	200
	To Obtain Your LifeScore	_____

Be sure to get the plus and minus signs right so that you add or subtract correctly.

LifeScore of 200 is about average. A LifeScore above 210 indicates a positive life-style, which gives you an excellent chance of enjoying health beyond the average life expectancy of 69 years for men and 77 years for women. A LifeScore below 185 means your chance of a healthy future is clearly decreased. If your LifeScore is below 170, consider your life to be in danger. Below 150, make out a will and get your affairs in order.

To determine how long you're going to live, make these simple calculations. For men, the formula is:

_____ (LifeScore) ÷ 200 × 70 years = _____ (Life Expectancy)

For women:

_____ (Life Score) ÷ 200 × 75 years = _____ (Life Expectancy)

"LifeScore" is taken from LifePlan for Your Health by Dr. Donald M. Vickery, president of the Center for Consumer Health Education, Inc. Dr. Vickery is co-author of Take Care of Yourself, a special edition of which is distributed by Blue Cross and Blue Shield plans.

HOW MUCH SHOULD YOU WEIGH

Men of Ages 25 and Over
(In indoor clothing, including shoes)

Height (with 1 inch heels)		Small Frame	Medium Frame	Large Frame
Feet	Inches			
5	2	112-120	118-129	126-141
5	3	115-123	121-133	129-144
5	4	118-126	124-136	132-148
5	5	121-129	127-139	135-152
5	6	124-133	130-143	138-156
5	7	128-137	134-147	142-161
5	8	132-141	138-152	147-166
5	9	136-145	142-156	151-170
5	10	140-150	146-160	155-174
5	11	144-154	150-165	159-179
6	0	148-158	154-170	164-184
6	1	152-162	158-175	168-189
6	2	156-167	162-180	173-194
6	3	160-171	167-185	178-199
6	4	164-175	172-190	182-204

Women of Ages 25 and Over
(In indoor clothing, including shoes)

Height (with 2 inch heels)		Small Frame	Medium Frame	Large Frame
Feet	Inches			
4	10	92-98	96-107	104-119
4	11	94-101	98-110	106-122
5	0	96-104	101-113	109-125
5	1	99-107	104-116	112-128
5	2	102-110	107-119	115-131
5	3	105-113	110-122	118-134
5	4	108-116	113-126	121-138
5	5	111-119	116-130	125-142
5	6	114-123	120-135	129-146
5	7	118-127	124-139	133-150
5	8	122-131	128-143	137-154
5	9	126-135	132-147	141-158
5	10	130-140	136-151	145-163
5	11	134-144	140-155	149-168
6	0	138-148	144-159	153-173

For girls between 18 and 25, subtract 1 pound for each year under 25.

4. The empathetic teacher/programer knows that stresses are interwoven and interact with one another. For example, hearing loss is related to decreased ability to understand speech, which may be related to depression, withdrawal, bursts of anger, and rigid behavior. Pfeiffer (53) reports that rigidity in older people is often a coping behavior. That is, the individual responds to a stimulus in rigid behavior patterns because they have proven themselves reliable. Thus an individual may insist in driving a certain route, at a certain speed, at only certain times because the pattern has been shown to be less threatening (fewer cars on the road); that is, the pattern has demonstrated its survival value.

B. Intervention is analogous to HPERD and other types of counseling and is concerned with helping the individual adapt or cope with stress here and now (14, 19, 28).

1. For example, the HPERD specialist may serve as friend-counselor when the older adult receives "bad news."

2. Early detection of vision disorders such as glaucoma or retinopathy can lead to intervention. Glasses may be prescribed and illumination increased to help visual performance. However, glare can serve to impede vision so that the two factors (illuminosity and glare) have to be accounted for in the intervention process. Similarly, hearing loss may be corrected through prescription of a hearing aid, corrective surgery, etc. (39, 45).

3. Often the HPERD environment intervenes to reduce depression by the very nature of providing joyful activity, friendships, etc. Too often overlooked is the need to follow through with depressed or otherwise distressed older adults after the official class or program

ends. The value of HPERD activities as intervention may be enhanced by subsequent telephone calls, social visits (including going to a restaurant for lunch or dinner), and otherwise keeping in touch. Establishing a telephone network among the older persons themselves is often helpful (19, 1).

Remember that the cause(s) of the stress response is often complex. Thus the HPERD professional may find it helpful to work hand-in-hand with the older person and his/her physician, clinical psychologist, social worker, etc.

C. Postvention is analogous to HPERD and other rehabilitative "treatment." It serves to ameliorate the crisis or stress after the fact (1, 19).

1. For example, many people are referred to recreation, dance therapy, and other HPERD programs for post-surgery rehabilitation; to regain control of one's body and improve morale as a result of Parkinson's disease, cerebral palsy, scleroderma, cancer; and/or to find meaning to life after the death of a significant other person (e.g., the newly widowed).

2. HPERD activity may be a worthwhile end in itself and may serve as means to an end. Concerning the latter, HPERD activities may serve as a means to developing friendships, counseling, learning of, legitimizing, and providing respect for an older person's past life via the "life review," etc. Often HPERD activities are an end in themselves in that they are joyous, fun, and bring relaxation, pleasure, and a sense of well-being (19).

LEARNING ACTIVITIES:

Objective: To learn to integrate HPERD courses/activities to meet the stress and other psychological needs of the older person.

1. Analyze how you and your friends cope with crisis or stress. What preventive interventions (educational), interventive (formal and informal counseling), and postventive (after the event rehabilitation) courses, therapies, interactions were helpful? Why were they helpful? How important was (1) the passing of time, (2) activity (doing something), (3) social support or friendship, and (4) new insights or knowledge?

2. Discuss how HPERD activities might be used as a means of crisis intervention. Discuss the HPERD environment as a means to (1) listening to problems and (2) providing valid and reliable alternatives to resolving a crisis or stress.

3. Develop a referral network of gerontologically oriented psychiatrists, other physicians, social workers, and those knowledgeable about available gerontological services within the community.

4. Role play the situation where a 65-year-old person becomes severely depressed as a result of forced retirement, the likelihood of moving to a less expensive dwelling due to a decline in income, a diagnosis of hearing dysfunction (presbycusis), and vision loss due to developing cataracts. As an HPERD professional, how would you help your friend/client deal with this complex of problems? Would or could HPERD activities serve as part of the intervention/postvention? How?

5. A 70-year-old person is severely depressed because of recent triple-bypass cardiac surgery. Develop an HPERD program which would meet his/her postventive physical and psychological needs. Keep in mind the concept of individualized, systematic programing.

REFERENCES

1. Clark, B. A., Wade, M. G., Massey, B. H., and Van Dyke, R., "Response of institutionalized geriatric mental patients to a twelve week program of regular physical activity," J. Geront., 30(5): 565-573, 1975.

2. Clarke, H. H., "Exercise and aging," in G. Burdman and R. Brewer (eds.), Health Aspects of Aging, Portland, Oreg.: A Continuing Education Book, pp. 127-142, 1978.

3. Conner, K., Powers, E., and Bultena, G., "Social interaction and life satisfaction: An empirical assessment of late-life patterns," J. Geront., 34(1):116-121, 1979.

4. Cutler, N. E., "Age variations in the dimensionality of life satisfaction," J. Geront., 34(4):573-578, 1979.

5. "Exercise works against diabetes," Science News, 116(24):407, 1979.

6. Fisher, F. S., Body Consciousness, New York: Jason Aronson, 1974.

7. George, L. K., "The impact of personality and social status factors upon levels of activity and psychological well-being," J. Geront., 33(6):840-847, 1978.

8. Graney, M. J., "Happiness and social participation in aging," J. Geront., 30(6):701-706, 1975.

9. Holmes, T. and Masuda, M., "Psychosomatic syndrome," Psychol. Today, 8(11):71+, 1972.

10. _____ and Rahe, R. H., "The social readjustment rating scale," J. Psychosomatic Res., 11:213-218, 1967.

11. Janis, I. L., Psychological Stress, New York: John Wiley, 1958.

12. Jenkins, C. D., "Psychosocial modifiers of response to stress," J. Human Stress, 5(4):3-15, 1979.

13. Klerman, G., "The age of melancholy," Psychol. Today, 12(11):36+, 1979.

14. Langer, E. J. and Rodin, J., "The effects of choice and enhanced personal responsibility for the aged: A field experiment in an institutional setting," J. Person. Soc. Psychol., 34(2):191-198, 1976.

15. La Rue, A., Bank, L., Jarvik, L., and Hetland, M., "Health in old age: How do physicians' ratings and self-ratings compare?," J. Geront., 34(5):687-691, 1979.

16. Leviton, D., "The significance of sexuality as a deterrent to suicide among the aged," Omega, 4(2):163-173, 1973.

17. _____, "The scope of death education," Death Education, 1(1): 41-56, 1977.

18. _____, "The intimacy/sexual needs of the terminally ill and the widowed," Death Education, 2(3):261-280, 1978.

19. _____ and Santa Maria, L., "The adults health and developmental program: Descriptive and evaluative data," The Gerontologist, 19(6):534-543, 1979.

20. Liang, J. and Fairchild, T., "Relative deprivation and perception of financial adequacy among the aged," J. Geront., 34(5):746-759, 1979.

21. Lynch, J., The Broken Heart, New York: Basic, 1977.

22. Markides, K. S. and Martin, H. W., "A causal model of life satisfaction among the elderly," J. Geront., 34(1):86-93, 1979.

23. Marx, J. L., "Hormones and their effects on the aging body," Science, 206(4420):805-806, 1979.

24. Palmore, E., "Predictors of successful aging," The Gerontologist, 19(5):427-431, 1979.

25. _____, Cleveland, W. P., Nowlin, J. B., Ramm, D., and Siegler, I. C., "Stress and adaptation in later life," J. Geront., 34(6): 841-851, 1979.

26. _____ and Kivett, V., "Change in life satisfaction: A longitudinal study of persons aged 46-70," J. Geront., 32(3):311-316, 1977.

27. Plutchik, R., Weiner, M. B., and Conte, H., "Studies of body image, I. Body worries and body discomforts," J. Geront., 26(3):344-350, 1971.

28. Rodin, J. and Langer, E. J., "Long-term effects of a control-relevant intervention with the institutionalized aged," J. Person. Soc. Psychol., 35(12):897-902, 1977.

29. Schulz, R. and Brenner, G., "Relocation of the aged: A review and theoretical analysis," J. Geront., 32(3):323-333, 1977.

30. Selye, H., The Stress of Life, New York: McGraw-Hill, 1956.

31. "Study pinpoints stress-illness link," Science News, 116(24):406, 1979.

32. Zenmore, R. and Eames, N., "Psychic and somatic symptoms of depression among young adults, institutionalized aged and noninstitutionalized aged," J. Geront., 34(5):716-722, 1979.

The following chapters are from J. E. Birren and K. W. Schaie (eds.), Handbook of the Psychology of Aging, New York: Van Nostrand Reinhold, 1977, now available in paperback along with its two sister volumes: Handbook of the Biology of Aging (edited by Finch and Hayflick) and Handbook of Aging and the Social Sciences (edited by Binstock and Shanas).

33. Arenberg, D. and Robertson-Tchabo, E. A., "Learning and aging," pp. 421-449.

34. Bengston, V. L., Kasschau, P. L., and Ragan, P. K., "The impact of social structure on aging individuals," pp. 327-354.

35. Birren, J. E. and Renner, V. J., "Research on the psychology of aging: Principles and experimentation," pp. 3-38.

36. Bondareff, W., "The neural basis of aging," pp. 157-169.

37. Botwinick, J., "Intellectual abilities," pp. 580-605.

38. Chown, S. M., "Morale, careers and personal potentials," pp. 672-691.

39. Corso, J. F., "Auditory perception and communication," pp. 535-553.

40. Craik, F. I., "Age differences in human memory," pp. 384-420.

41. Eisdorfer, C. and Stotsky, B. A., "Intervention, treatment, and rehabilitation of psychiatric disorders," pp. 724-750.

42. _____ and Wilke, F., "Stress, disease, aging and behavior," pp. 251-275.

43. Elias, M. F. and Elias, P. K., "Motivation and activity," pp. 357-383.

44. Engen, T., "Taste and smell," pp. 554-561.

45. Fozard, J. L., et al., "Visual perception and communication," pp. 497-534.

46. Frokis, V. V., "Aging of the autonomic nervous system," pp. 177-189.

47. Guttman, D., "The cross-cultural perspective: Notes toward a comparative psychology of aging," pp. 302-326.

48. Kenshalo, D. R., "Age changes in touch, vibration, temperature, inesthesis, and pain sensitivity," pp. 562-579.

49. Lawton, M. P., "The impact of environment on aging and behavior," pp. 276-301.

50. Lowenthal, M. F., "Toward a sociological theory of change in adulthood and old age," pp. 116-127.

51. Marsh, G. R. and Thompson, L. W., "Psychophysiology of aging," pp. 219-248.

52. Neugarten, B., "Personality and aging," pp. 626-649.

53. Pfeiffer, E., "Psychopathology and social pathology," pp. 650-671.

54. Rabbitt, P., "Changes in problem solving ability in old age," pp. 606-625.

55. Schaie, K. W. and Schaie, J. P., "Clinical assessment and aging," pp. 692-723.

56. Welford, A. T., "Motor performance," pp. 450-496.

MODULE 4: THE NEWEST FRONTIER FOR HPERD: DEATH AND DEATH-RELATED BEHAVIOR

INTRODUCTION

HPERD programs have generally been overlooked as helpful therapeutic modalities for the dying person and family, the bereaved, and suicidal. There have been and still are exceptions to the rule. Recreation therapists, physical and occupational therapists, and to a lesser degree, movement and dance specialists have worked with the seriously ill and dying person.

One reason for this avoidance behavior may be that catastrophic illness, dying, and death remind us that we must all die. More important is the knowledge that "I" must die. Implement the healthiest regimen including good nutrition, exercise, peace of mind, moderation in all things, and still we must die. A difficult lesson for HPERD professionals is to acknowledge that the goal in working with the aged, the sick, and dying may <u>not</u> be improvement or even maintenance of health or physical efficiency status, but rather enjoyment of remaining moments of life. Too often we revert to magical, stereotypical thinking of the robust aged person jogging on forever with a bright smile, taut of skin, and firm of flesh--a sort of geriatric Superman or Wonder Woman. It does not work that way.

On the other hand, health education was among the first academic disciplines to include formal death education in its curriculum at the college level. At educational-scientific meetings of the Forum for Death

Education and Counseling* an increasing number of HPERD professionals and students are participating. Thus, HPERD is slowly coming to recognize the possibility of making a major contribution to improving the quality of life for the dying person and his/her family as well as serving to help the bereaved adapt to that most profound of all stressors, death of a beloved person or pet.

From the HPERD perspective this unit might have been entitled Death and Dying: Before, During, and After. The "before" refers to educating before the event of death of significant others or self. It is analogous to the preventive intervention phase of our model. Operationally, it refers to formal and informal death education.

The "during" refers to intervention in our model. It is highly recommended that HPERD activities and education may be useful to the dying person and his/her family in the here and now. The goal in working with the dying person is to help that person die well or healthily (11) or to use Weisman's terminology, "appropriately" (27). The concept recognizes that the dying are living until dead. The dying person possesses the needs of the living as well as needs unique to his/her terminality (for example, sense of futurity is limited, time is of the essence, and fears concerned with suffering, inability to tie loose ends together, future of survivors, afterlife, etc.). The concept also recognizes that

---

*The Forum for Death Education and Counseling, P.O. Box 1226, Arlington, Va. 22210, is the educational-professional-scientific organization devoted to upgrading the quality of death education and counseling. It is national in scope with regional chapters, conducts national and regional training workshops and conferences, publishes a newsletter, sponsors the journal Omega, provides discounts to others, and welcomes HPERD students and professionals as members.

people are complex and individualistic, that is, people live and die uniquely.

"After" refers to postvention and is concerned with education and counseling for the bereaved and the suicide attempter. The goal with both is to help the individual (1) find valid and sustaining meaning to life and (2) reconstitute himself or herself so as to eventually re-engage with society, develop social relationships, etc.

The implications of the study of death (thanatology) go beyond service to the dying, bereaved, and suicidal. Death may serve as a stimulus to improve the quality of civilized life (11, 14, 15). For if we are dying prematurely, before reaching humankind's allotted 110 years, due to man-made causes such as wars, pogroms, holocausts, starvation, pollution, etc., then, perhaps, confrontation with death might do much to improve the quality of civilized life. If humankind can come to realize that it is ourselves and our children who can starve or die napalmed, and not only the amorphous child of an amorphous enemy, then, perhaps, concerted worldwide civilizing efforts may be sustained.

Considering the concern for individual and social health and well-being ingrained within the fabric of HPERD, the death-related palliative roles recommended would seemingly be a major contribution toward improving the quality of civilized living and dying.

This module will focus on the following major themes:

1. Death is more than merely a biological event. It has psychological, social, and other implications for health and well-being of individual and community (13).

2. There is an increasing body of knowledge concerning death-related behavior.

3. Appropriate death education, intervention, and postvention may serve to mediate the stress of death and dying.

The learning activities are designed to help the reader to translate each concept into HPERD course/activity development.

OBJECTIVES OF THE MODULE:

On the completion of this module, the HPERD professional should be able to:

1. Understand and discuss the broad implications of death for human behavior as well as the specific death concerns of older people.

2. Understand the role of HPERD course/programs as means to improving the quality of life for the dying, suicidal, and bereaved persons.

3. List selected resources in the field of thanatology (study of death).

4. Modify existing or develop new HPERD course/programs, taking into consideration the death-related behavior and concerns of older persons.

I. The broad, catholic, pervasive meaning of death for human experience.

Concept I: Death is more than merely a biological event: It has psychological, social, and other implications for individual and community health and well-being (3).

A. Denial of the possibility of one's own death may be a factor which contributes to war as an acceptable means of conflict resolution, man-made starvation, pogroms, holocausts, environmental insults, etc. While average life expectancy is increasing, people are still dying prematurely due to man-made causes (15).

B. The theme of death is ingrained in such phenomena as child abuse, wife abuse, abuse and avoidance of the aged, and terminally ill (dying) and aged (11).

C. Death and other forms of loss are often the cause of or contribute to depression, homicidal and suicidal behavior, onset of cancer, coronary heart disease, kidney disease, compulsive behavior, schizophrenia, etc. (5, 6, 17, 23).

D. Fear of death is complex. On the one hand, it may inhibit enjoyment of life and exacerbate the dying process. On the other hand, fear of death has survival value for individuals and species. It serves to preserve the species while avoiding deadly situations. Fear of death is multidimensional and includes fear of death of self, dying of self, death of beloved others, dying of beloved others, the dead, etc.

Some specific outcomes of fear of <u>death</u> of self and beloved others include fear of the unknown, afterlife, and eternal punishment; concerns over well-being of survivors; leaving unfinished tasks and projects; and dying "off-time" (either too soon or too late) (7, 8).

1. Some specific outcomes of fear of <u>dying of self</u> include fear of suffering, isolation, having lived a meaningful life (including not being remembered by future generations), being a burden to others, loss of control of one's destiny and life, etc.

2. Some specific outcomes of fear of <u>dying of beloved others</u> include profound sense of loss and void, concerns over survival capabilities of self and family, reminder of one's own limited mortality and of the inability to control the time and cause of death, etc. (8).

E. Contemplating and/or experiencing death of others is associated with human growth, creativity, and genius. Death may serve as a stimulus to either growth and actualization or despair, inability to enjoy, and suicide (14).

LEARNING ACTIVITIES:

Objective: To understand the ubiquitous, pervasive quality of death.

1. Obtain newspapers for one week. Cut out all articles, comics, editorials, and other references to death in the newspaper. What do you have left? Hold the newspaper up. What does this tell you?

2. Interview older and younger people. Using the death-related fears mentioned in the module, determine the specific fears of the two groups. Include "fear of old age" in your survey. How do the two age groups differ?

What are your own death-related fears? Are there other fears that take priority over fears concerning death? For example, these can be fears over disfigurement and mutilation, being unsuccessful in one's work, intimate relationships, objects and situations such as snakes, high buildings, etc.

Concept II: Dying and death are generally considered the most profound stressors within the human experience (4, 6).

A. Dying is a biological and psycho-social process which usually terminates in permanent cessation of functioning, that is, death. The biopsychosocial processes may be predicted subject to wide human variation. Under certain circumstances, and with proper and urgent

intervention, the biological process of dying may be reversed. There comes a time in the dying process, however, when intervention techniques are useless (20). Death, by definition, cannot be reversed. That is, if one of the characteristics of death is permanent cessation and irreversibility of whole brain or total systems functioning, then "dead men tell no tales." There are many models of psycho-social dying ranging from the early work of Kubler-Ross (9) to Weisman (27) and others (10a).

B. Prognosis of surgery or serious and mild illness may be perceived in such a way as to contribute to premature, inexplicable death (27).

C. Some people die "better" (read, "appropriately" "healthily" "easier") than others. Factors mediating the style of dying include personality, quality of social support, degree of satisfaction with life up to that point, personal eschatology, sense of control of one's dying (e.g., treatment, location, counter-control, etc.) (2, 3, 4, 27).

D. Suffering the death of a beloved or valued person or pet increases the probability of vulnerability to morbidity and mortality (5, 6, 23). The individual suffering the death of a beloved other goes through a grief process which is time consuming, painful, and also varies between individuals. The grief process and outcome are mediated by age, sex, previous health status, degree of social role change, quality of social support, quality of interaction with the dying person prior to death ("anticipatory grief"), perception of social economic status, etc. (5, 6, 23). Grief has psychological and somatic manifestations (4, 5, 18, 23). Grieving is seen as an adaptive process of the individual to profound loss. It may occur immediately following

death. It may be delayed, or it may occur before the death ("anticipatory grief"). It may be prolonged, that is, undiminished in its intensity, after the passing of years. Usually grief is a lifelong process. Its psychological effects are generally pronounced during the first month, decrease during the next six months, but still remain significant during the next two years. Flareups of the grief syndrome may be expected during significant dates, e.g., holidays, anniversaries, etc.

Grief has describable and predictable behavioral symptoms such as shock and denial, anguish, pain and despair, yearning and searching, auditory and visual hallucinations of the dead person, feelings of guilt and anger, lassitude, etc. (5). Given time, the healing process evolves, and the individual, hopefully, psychologically lets go his/her ties to the dead and re-engages with the world of the living.

E. Evidence exists that stress has a cumulative effect. That is, suffering multiple deaths of significant others over a short period of time (say three-year period) increases the probability of morbidity and mortality (4, 6). However, the role of age, socio-economic status, ethnicity, etc., as main or interactive effects upon health outcome remains undetermined.

F. Older people tend generally to be less anxious or fearful but more concerned with death. They talk of it, scan the obituary column, attend funerals, and plan for its eventuality more so than younger people (8).

G. Suicide increases with age, particularly among white males so that even though persons over the age of 65 make up 9 percent of the population, they account for approximately 25 percent of all suicides. The profile of the white, aged suicider (which must be viewed

with allowance for variation) often includes the following characteristics (19, 22): Over age 55, seldom attended church or synagogue, was not visited by friends or relatives at least once a week, was experiencing chronic sleeping problems during the year before his death, had a strong reliance upon drugs such as alcohol, and may have had a relative or personal problem with an emotional or mental illness. Note that these characteristics are meant to be descriptive rather than predictive.

1. Psychologically, suicidal behavior among the elderly is often associated with sense of despair, hopelessness, and diminution of meaning to life. It is also associated with poor health, alcohol dependence, and inadequate or unsatisfactory human relationships (13, 22). Thus suicide may be viewed as a stress reaction to both psychological and social stressors. Suicide is one way of coping with a set of problems. Death and suicide are the ultimate adaptation processes par excellence. Once one dies, regardless of how, he/she no longer has problems to resolve. Death may be perceived as providing the only stress-free state to the distraught individual.

2. Suicide may be prevented to some degree by means of education, counseling, and other interventive and rehabilitative methods. The degree that HPERD courses/programs may be helpful in this regard remains to be tested, although there is some evidence that the hypothesis is worthy of exploration (16).

LEARNING ACTIVITIES:

Objective: To understand death-related phenomena as both stressor and stress response.

1. Discuss the meaning of the idiom "dying of a broken heart." Under what circumstances might death of a beloved other cause the premature death of survivors?

2. Think through the death of the person extremely close to you. What were your feelings? What would you do in the event of that person's dying and death?

3. Fill out your own death certificate (enclosed). How long did it take you to begin and how long to complete the task? What was the most difficult part? How did you feel? Did you feel distressed?

4. Consider in the same way that you are to undergo amputation of an organ, another form of loss or "little death." Think through, over time, how you would adapt. Would you feel suicidal at any time?

5. Consider the philosophical question, "Why have you not suicided?" What does your response have to say about your priorities and values?

6. Develop a death education course for older adults.

7. Discuss how HPERD programs might be designed to serve the older dying person and family, the older recently widowed person, and the older person who is grieving someone other than his/her mate.

II. The study of death (thanatology).

Concept I: The subject matter or knowledge base of thanatology has been growing since 1956 when Herman Feifel's The Meaning of Death was published (3). The thanatological movement gained significant impetus with the publication of Elizabeth Kubler-Ross' On Death and Dying (9). Today textbooks in death education and specific death-related areas abound (e.g., 1, 3a, 7, 8, 24, 26).

SPEEDMARK® MOORE BUSINESS FORMS, INC.

PLEASE TYPEWRITE OR PRINT WITH BALL POINT PEN SO ALL COPIES WILL BE LEGIBLE.

DIVISION OF VITAL RECORDS, 201 W. PRESTON ST., BALTIMORE, MARYLAND 21201

TO HOSPITAL OR ATTENDING PHYSICIAN: The law requires that the death certificate be executed within 24 hours after death. Page 4 may be removed by the hospital or attending physician.

TO FUNERAL DIRECTOR: After this certificate has been signed by the attending physician and completely filled in by the funeral director, page 3 should be detached for use on the burial-transit permit. Then please remove carbon papers. Pages 1 and 2 should be filed within 72 hours after death with the State Dept. of Health and Mental Hygiene prior to burial, cremation, or removal.

IMPORTANT: If Item 21 is marked or Item 18 shows any injury, or other traumatic event, the medical examiner must be notified at once.

BP_____

DHMH - 16 ADM 7/73
(VS A 15 (4))

STATE OF MARYLAND
DEPARTMENT OF HEALTH AND MENTAL HYGIENE
CERTIFICATE OF DEATH

1 - FOR STATE REGISTRAR

BY ... NO.

1. DECEASED NAME (TYPE OR PRINT) — FIRST — MIDDLE — LAST
2a. DATE OF DEATH — MONTH — DAY — YEAR
2b. HOUR
3. SEX
4. RACE
5. DATE OF BIRTH — MONTH — DAY — YEAR
6. AGE (IN YEARS LAST BIRTHDAY) — YRS. — IF UNDER 1 YEAR: MONTHS, DAYS — IF UNDER 24 HRS: HOURS, MINS
7a. BIRTHPLACE (STATE OR FOREIGN COUNTRY)
7b. CITIZEN OF WHAT COUNTRY?
8. MARRIED ☐ NEVER MARRIED ☐ WIDOWED ☐ DIVORCED ☐
9. BALTIMORE CITY OR COUNTY OF DEATH — MD.
10. CITY OR TOWN OF DEATH
11. NAME OF HOSPITAL, NURSING HOME OR OTHER INSTITUTION (IF NOT IN SUCH FACILITY, GIVE STREET ADDRESS)
12a. USUAL OCCUPATION (TYPE OF WORK DONE FOR MOST OF WORKING LIFE)
12b. KIND OF BUSINESS OR INDUSTRY
13a. USUAL RESIDENCE (IF NURSING HOME OR OTHER INSTITUTION, GIVE RESIDENCE BEFORE ADMISSION) STATE
13b. COUNTY
13c. CITY OR TOWN
13d. INSIDE CITY LIMITS? YES ☐ NO ☐
13e. STREET ADDRESS
14. FATHER'S NAME — FIRST — MIDDLE — LAST
15. MOTHER'S MAIDEN NAME — FIRST — MIDDLE — LAST
16a. WAS DECEASED EVER IN U.S. ARMED FORCES? (YES, NO OR UNKNOWN) (IF YES, GIVE WAR OR DATES)
16b. SOCIAL SECURITY NO.
17. INFORMANT — ADDRESS

MEDICAL CERTIFICATION

18. CAUSE OF DEATH (Enter only one cause per line for (a), (b), and (c).)
PART I. DEATH WAS CAUSED BY:
IMMEDIATE CAUSE (a)_____
DUE TO, OR AS A CONSEQUENCE OF
Conditions, if any, which gave rise to immediate cause (a), stating the underlying cause last. (b)_____
DUE TO, OR AS A CONSEQUENCE OF
(c)_____

PART 2. OTHER SIGNIFICANT CONDITIONS CONTRIBUTING TO DEATH BUT NOT RELATED TO THE TERMINAL DISEASE OR CONDITION GIVEN IN PART 1(a)

19a. DATE OF OPERATION
19b. CONDITION FOR WHICH OPERATION WAS PERFORMED
20a. AUTOPSY? YES ☐ NO ☐
20b. IF YES, WERE FINDINGS USED IN CERTIFYING CAUSES OF DEATH? YES ☐ NO ☐
21a. ACCIDENT WAS UNDERLYING ☐ OR CONTRIBUTING ☐ CAUSE OF DEATH (IF OTHER, NOTIFY MEDICAL EXAMINER)
21b. TIME OF INJURY HOUR A.M. P.M. MONTH DAY YEAR 19
21c. HOW INJURY OCCURRED (GIVE NATURE OF INJURY IN ITEM 18, PART I OR PART II)
21d. INJURY OCCURRED WHILE AT WORK ☐ NOT WHILE AT WORK ☐
21e. PLACE OF INJURY (AT HOME, STREET, FACTORY, OFFICE, FARM, ETC.)
21f. LOCATION STREET — CITY OR TOWN — COUNTY — STATE

22a. I certify that (I) (this hospital) attended the deceased from _____ 19_____, to _____ 19_____. that (I) (we) last saw the deceased alive on _____ 19_____, and that in (my) (our) opinion death occurred on the date and hour and from the causes stated above. (I) (we) (did) (did not) view the body after death.
22b. SIGNATURE — DEGREE — ATTENDING PHYSICIAN ☐ MEDICAL DIRECTOR ☐ STAFF PHYSICIAN ☐
22c. DATE SIGNED
22d. PHYSICIAN'S NAME (TYPE OR PRINT)
22e. ADDRESS

23a. BURIAL, CREMATION, REMOVAL (SPECIFY)
23b. DATE
23c. NAME OF CEMETERY OR CREMATORY
23d. LOCATION — CITY OR TOWN — COUNTY — STATE
24. FUNERAL DIRECTOR — NAME — ADDRESS
25a. DATE REC'D. BY REGISTRAR
25b. REGISTRAR'S SIGNATURE

105

113

A. Some journals specifically devoted to the topic of death include Omega, Journal of Thanatology, Suicide, Essence, and Death Education. Research, clinical, and other articles are regularly indexed in Index Medicus, Psychological Abstracts, Abstracts for Social Workers, Biological Abstracts, Excerpta Medica, etc.

B. The Forum for Death Education and Counseling is a non-profit organization devoted to the ideal of upgrading the quality of death education and counseling (see Introduction to this module). Other national organizations with either broad or specific purposes include The Foundation of Thanatology, The International Work Group on Death and Dying, and The American Association of Suicidology.

C. Self-help groups exist for specific purposes such as Make Today Count (for cancer patients and their families), Widow to Widow Programs, The Candlelighters (for parents of dying children), memorial societies (provide inexpensive and dignified funerals), local Ostomy Associations (consult the telephone book or local health or mental health agency for addresses, or write to The Forum).

D. HPERD, with special reference to health education, has always been receptive and supportive to the death education movement.

E. Older adults regularly enroll in formal college level death education courses and programs which encourage discussion and learning of death.

LEARNING ACTIVITIES:

Objective: To become knowledgeable of the thanatological resources available to HPERD students and professionals.

1. Visit your local library and review the books listed in the card catalogue under the headings of death, dying, grief, bereavement, terminal illness, hospice, suicide, euthanasia, bioethics, etc. Review a random sample of those books. How many are based on experimental and clinical data? Which are based upon logic? Which are thoughtful expositions? What does this say of the field of thanatology?

2. Review the various journals devoted specifically to the topic of death. Do any of the articles stimulate ideas concerning courses/programs salient to HPERD?

3. If possible, visit one of the organizations or associations concerned with death or serious illness. In what ways could you or other HPERD instructors make a contribution toward achieving the mission of the particular association?

III. Preparing for, counseling during, and rehabilitating after death.

Concept I: Death may be studied as any other human behavior may be studied. Thus death, in a sense, may be prepared for but nonetheless tends to catch us by surprise.

A. Death education was born in the United States during the 1960s, and the number of death education courses has proliferated throughout the United States, especially on the college and university level (10, 12). Older persons attend such courses both in the regular university classroom and through continuing education offerings.

B. The goals of death education may be specific (e.g., learning how to plan one's will and funeral; learning to communicate and plan toward personal death, etc.) or global (e.g., study of death as a means to prevent war and other man-made forms of death) (12).

LEARNING ACTIVITIES:

Objective: To stimulate toward planning one's own death.

1. Survey neighboring colleges and universities to assess the quantity and quality of death education courses offered. Request their course outlines. What are the course objectives, texts, and experiential exercises (field trips)? How might such courses help you or another older person prepare for death of self or beloved other?

2. Write your own will. What were your feelings? Why had this not been done earlier?

3. Write down and discuss with the person or persons closest to you the circumstances under which you would like to die if die we must. Where would you like to die (home, hospital, hospice, nursing home) and with whom in attendance (no one, friends, very intimate family or friends)? Would you wish to experience your own dying, or would you wish to die in your sleep or in a drugged, somnabulent state? Under what conditions would you wish to be kept alive by so-called heroic, life-saving methods (respirator, intravenous feeding, chemotherapy, etc.) even though death was imminent? What factors would lead to an "appropriate," "good," or "healthy" death compared to a "terrifying," "miserable," or "unhealthy" death for you? Ask the same question of older and younger people. How do they differ?

Concept II: Research suggests that counseling and other interventions can contribute to the "appropriate dying" of the individual (2, 7, 9, 27).

A. If the dying are living until dead, then a reasonable heuristic and humanistic question is, What are the circumstances that

make remaining moments and days of life meaningful? Gerontological research investigating the predictors of life satisfaction provides insights for HPERD. Generally, such studies indicate that activity, perceived health, social interaction with friends, and socio-economic status (SES) predict life satisfaction (21). HPERD can do little to affect SES; it may be able to affect perceived health and well-being status; however, the probability is high that it can provide modified and appropriate activities, the means to expressing friendship, and relieve a depressing ambience often found wherever dying occurs.

B. A programmatic model which integrates HPERD to improve the quality of life for the living and dying exists (16).

C. The hospice movement is designed to help the dying person die comfortably, pain free, and "appropriately" (2). By and large they have not explored the use of HPERD within their therapeutic framework at this date, although the idea has been expressed (11).

D. Euthanasia means "good death" and is complex. It refers to variations of (1) hastening death or (2) allowing death to occur when death is imminent and prospects of recovery are nil. Most religious and medical bodies condone the latter under most circumstances but are adamantly opposed to the former (1, 25). Euthanasia is a form of intervention.

LEARNING ACTIVITIES:

Objective: To conceptualize phenomena which might help a person die healthily or well.

1. Interview several older people about their past life ("life review"). Find out what their favorite HPERD activities were. If that

person were dying, how could you modify the activity for that person? For example, a 67-year-old male is bedbound and dying of cancer. He enjoyed golf and bridge before his illness. Design a golf game in which he and his wife could participate. How might golf and bridge serve to improve quality of the man's dying, communication with his wife, and relieve the depression of the environment?

2. If possible, visit or read literature on the hospice. How might HPERD activities be integrated into the hospice concept?

3. Discuss euthanasia. Under what circumstances would you wish death hastened? Under what circumstances would you wish to be allowed to die? Ask older and younger persons the same question. How are they alike? How do they differ?

Suicide by the terminally ill is also a form of euthanasia ("hastening death"). When is it ethical and rational? When is it not? How might HPERD and other interventions affect the desire to die?

Concept III: Postvention is concerned with helping the bereaved and/or suicidal individual reconstitute themselves, find meaning in life, and eventually re-engage with society.

A. Some predictors of healthy bereavement in adults include previous health status, socio-economic status, quality of social support, immediate (rather than delayed) working through of grief or mourning, participating in the dying process (e.g., caring well for the dying person), and finding a purpose in life (5, 17, 18, 22).

B. In working with the suicidal person the goal is to help him/her (1) reduce the complex of problems/stresses which elicit an end to life, (2) to strengthen coping capabilities, (3) to assure psychological

support, and (4) to find meaning in life. The suicidology-trained professional seeks time above all allowing for attitudinal, perceptual, social, and phenomenological change to occur (21).

LEARNING ACTIVITIES:

Objective: To understand the psycho-social status of the bereaved and/or suicidal older person and the need for rehabilitative HPERD programs.

1. Interview a group of older widows and widowers. Categorize them by number of years bereaved (recently bereaved versus long term bereaved). Assess their health status ("poor," "fair," "good," "excellent"), appetite ("poor" . . . "excellent"), quality of sleep ("poor" . . . "excellent"), depression ("below my usual average," "about my usual average," "above my usual average"), visits to physician ("below my usual average," "about my usual average," "above my usual average"), and thoughts of suicide ("rarely," "fairly frequently," "very frequently"). Do they differ on any of the symptoms on the basis of sex, years widowed, and sex and years widowed? Discuss this in terms of the older widowed person's needs. Also interview informally to determine (1) the greatest problems associated with widowhood, (2) factors which were helpful or unhelpful in their grieving, (3) advice from the widowed to potential widows and widowers.

2. Develop a rationale for an HPERD course/program which would be helpful in the rehabilitation of the elderly bereaved and/or suicidal person. Translate the rationale into a plan integrating the subject matter of bereavement and/or suicide.

3. Discuss "burnout" (see 4, pp. 111-120). Do you think you would be able to work for any length of time with the elderly dying person and

family, the bereaved, and/or the suicidal? Why or why not? What are the rewards and liabilities? What kinds of support would you require if a client/student/patient/friend died? How would you prevent yourself from "burnout," or how would you re-motivate or recharge yourself? Why is it that all HPERD people cannot work effectively with the dying, their families, the bereaved, and the suicidal? Why is it necessary to know your own personality, coping resources, and meaning given death and dying before committing oneself to working with this population?

REFERENCES

1. Beauchamp, T. and Perlin, S. (eds.), Ethical Issues in Death and Dying, Englewood Cliffs, N.J.: Prentice-Hall, 1978.

2. Davidson, G., "Hospice care for the dying," in H. Wass (ed.), Dying: Facing the Facts, Washington, D.C.: Hemisphere Press, 1979, pp. 158-181.

3. Feifel, H., The Meaning of Death, New York: McGraw-Hill, 1959.

3a. _____ (ed.), The New Meanings of Death, New York: McGraw-Hill, 1977.

4. Garfield, C., Stress and Survival, St. Louis, Mo.: Mosby, 1979.

5. Glick, I., Weiss, R., and Parkes, C., The First Year of Bereavement, New York: John Wiley, 1974.

6. Holmes, T. H. and Masuda, M., "Psychosomatic syndrome," Psychol. Today, 8(11):71+, 1972.

7. Kastenbaum, R., Death, Society, and Human Experience, New York: Mosby, 1977.

8. _____ and Aisenberg, R., The Psychology of Death, New York: Springer, 1972.

9. Kubler-Ross, E., On Death and Dying, New York: Macmillan, 1969.

10. Leviton, D., "Death education," in H. Feifel (ed.), The New Meanings of Death, New York: McGraw-Hill, 1977.

10a. _____, "Death education," in W. Johnson (ed.), Health in Action, New York: Holt, Rinehart and Winston, 1977.

11. _____, "How shall the twig be bent: Thoughts on the forum for death education and counseling, and the field in general," in E. Zinner and S. Steele (eds.), Selected Proceedings from the First National Conference of the Forum for Death Education and Counseling, Lexington, Mass.: Ginn Custom Publishing Co., 1979.

12. _____, "The scope of death education," Death Education, 1(2): 41-56, 1977.

13. Leviton, D., "The significance of sexuality as a deterrent to suicide among the aged," Omega, 4(2):163-173, 1973.

14. _____, "The stimulus of death," Health Education, 7(2):17-20, 1976.

15. _____, "Towards love and peace behavior," J. Clinical Child Psychol., Fall, pp. 14-17, 1976.

16. _____ and Santa Maria, L., "The adults' health and developmental program," J. Geront., 19(6):534-543, 1979.

17. _____, "The intimacy/sexual need of the terminally ill and the widowed," Death Education, 2(3):261-280, 1978.

18. Maddison, D. and Raphael, B., "Conjugal bereavement and the social network," in B. Schoenberg, et al. (eds.), Bereavement: Its Psychosocial Aspects, New York: Columbia University Press, 1975.

19. Miller, M., "Toward a profile of the older white male suicide," J. Geront., 18(1):80-82, 1978.

20. Negovskii, V., Resuscitation and Artificial Hypothermia, New York: Consultants Bureau, 1962.

21. Palmore, E., "Predictors of successful aging," The Geront., 19(5): 427-431, 1979.

22. Perlin, S. (ed.), A Handbook for the Study of Suicide, New York: Oxford, 1975.

23. Schoenberg, B., et al. (eds.), Bereavement: Its Psychosocial Aspects, New York: Columbia University Press, 1975.

24. Schneidman, E., Deaths of Man, New York: Quadrangle/New York Times, 1973.

25. Veatch, R., Death, Dying, and the Biological Revolution, New Haven, Conn.: Yale University Press, 1976.

26. Wass, H., Dying: Facing the Facts, Washington, D.C.: Hemisphere Press, 1979.

27. Weisman, A., The Realization of Death, New York: Aronson, 1974.

CONTENT IN CREATIVE MOVEMENT/DANCE, GENERAL FITNESS, HEALTH EDUCATION, AND LEISURE

MODULE 5: CREATIVE MOVEMENT/DANCE

INTRODUCTION

Dance is hypothesized to be an effective prescription for prevention and amelioration of physical and psycho-social deterioration in the elderly. The loss of functional capacities and anticipation of death may create stress and contribute to depression and anxiety. Serious psycho-social problems can be brought on by role changes in the family and at work and by the loss of significant others. Another problem facing many elderly is isolation. Isolation may be social, in that persons are physically separated from others, or emotional, in that persons withdraw from social contact. The expression of feelings in a creative dance class can avert these problems. Dance promotes group interaction and sociability. It recognizes each senior citizen as a valuable person, provides a creative outlet, and improves functional capacities.

This module provides a format for training HPERD students and others to teach dance to the elderly. It is divided into two sections: (1) conceptual foundations for teaching dance to the elderly and (2) field experience in teaching dance to the elderly. The module is based on the following assumptions: (1) the teacher is experienced in dance or movement education, (2) the teacher has experience in teaching creative movement to the elderly and is involved in his or her own movement growth, and (3) the teacher is conducting, is interested in conducting, or has conducted classes in dance for the elderly.

The salient topics relevant to the domain of movement and dance to be discussed are as follows:

1. What is the conceptual foundation for teaching dance to the elderly?

2. What are the physiological aspects of aging as they pertain to dance?

3. What are the psycho-social aspects of aging germane to teaching dance to the elderly?

4. What are the goals and techniques of teaching dance to the elderly?

5. What is adequate field experience for teaching dance to the elderly?

This module will follow a slightly different format than the others in this volume. Instead of concepts, the body of the module will focus on salient topical questions. References will immediately follow the topic rather than be placed at the end of the module.

With that caveat, the reader should know that the dance technique providing the basis for this module is creative movement based on Barbara Mettler's Materials of Dance. Mettler's philosophy is that dance is for everyone and that, given the freedom to explore movement, people will naturally dance.

> They will develop an awareness of their movements which will lead to gaining control and mastery over their bodies. The formula simply stated is Freedom leads to Awareness which leads to Control (Mettler, 1960).

In order to facilitate this process, the dance teacher must be sensitive and responsive to the needs of each individual senior citizen.

Creative dance, as it is used here, is contrasted to social dance or dance performance. Although some form of dance performance may occur

and elements of social dance (ballroom, disco, ethnic, or folk) may be incorporated into creative dance classes, they will not be the main focus of this module.

Thus creative dance, as viewed here, provides a structure for exercise that makes it pleasurable. It also goes beyond exercise by providing a mechanism for the expression of feelings, the improvement of self-esteem through awareness of one's physical and creative potential, and the improvement of body awareness. Creative dance also enhances sharing, caring, and the expression of joy in a group.

Resource:

Mettler, B., Materials of Dance as a Creative Art Activity, Tucson, Ariz.: Mettler Studios, 1960.

ORGANIZATION

The chart given below represents the format and syllabus followed in this module.

FORMAT AND SYLLABUS

	Topic	Assessment	Field Experience
Week			
1	Orientation		Participate in dance class for elderly
2	Goals of dance with elderly	Read dance therapy material	Visit sites
3	Body image	Read and discuss two resources	Participate in dance class with elderly

Week	Topic	Assessment	Field Experience
4	Physiological aspects		Participate in dance class with elderly
5	Psycho-social aspects	Turn in summary on body image	Participate in dance class with elderly
6	Techniques of teaching	Turn in lesson plan 1	Visit sites; set goals; plan first class
7	On-site supervision Group supervision seminar	Turn in goals, Lesson plan 2	First class: introduction and assessment
8	On-site supervision*	Lesson plan 3	Second class: continue assessment and re-evaluate goals
9	Group supervision seminar	Lesson plan 4	Third class
10	Group supervision seminar	Lesson plan 5	Fourth class
11	Group supervision seminar	Lesson plan 6	Fifth class
12	Group supervision seminar	Lesson plan 7	Sixth class
13	Group supervision seminar	Lesson plan 8	Seventh class
14	Group supervision seminar (discuss termination of classes)	Lesson plan 9	Eighth class
15	Group supervision seminar	Lesson plan 10	Ninth class: prepare for termination
16	Final seminar	Turn in evaluation of field experience	Tenth class

Topic	Assessment	Field Experience
Week		
17 Final exam: crystallization of cognitive material with field experience		

*Additional on-site supervision should take place throughout the training as needed, perhaps three additional times. Group supervision time may be used to discuss problems, to practice teaching, to exchange ideas, and to support each other's work.

LEARNING ACTIVITIES:

Objective: To orient the student to the goals, structure, and philosophy of the course.

1. Explain how the course is structured--provide a syllabus.

2. Discuss philosophy of teaching creative dance to the elderly.

3. Discuss expectations from the students and expectations the students have for the course.

4. Describe the populations at the sites, site assignments, and schedules.

5. Explain the differences and similarities between dance therapy and creative movement for the elderly.

a. Define dance therapy: According to the American Dance Therapy Association, dance therapy is the "psychotherapeutic use of movement as a process which furthers the emotional and physical integration of the individual."

b. Discuss similarities between dance therapy and creative movement. For example:

i. Both are therapeutic; people gain insights into themselves, feel better about themselves, and integrate body and psyche.

ii. Both are expressive; people have an opportunity to express their feelings.

iii. Both therapist and teacher must be sensitive and responsive to the moods and needs of the individuals.

c. Discuss differences between dance therapy and creative movement. For example:

i. Therapist has a contract to work through emotional problems with the client, which the creative movement teacher does not.

ii. A dance therapist is more likely to be working in a clinical setting.

d. Student compares and contrasts goals for dance therapy with those of creative movement.

e. Student demonstrates an understanding that being old is not analogous to being sick; similarly, just because we dance with the elderly, it does not mean that we are doing dance therapy.

Resources:

Dance Therapy:

Garnet, E., "A movement therapy for older people," Dance Therapy: Focus on Dance VII. Washington, D.C.: AAHPERD Publications, pp. 59-61, 1974.

Merritt, M., Dance Therapy Program for Nursing Homes, Boston, Mass.: Unitarian Universalist Association, 1971.

Samuels, A., "Dance therapy for the aged," Proceedings for Third Annual Conference, Baltimore, Md.: American Dance Therapy Association, pp. 85-87, 1972.

Turbow, S., "Geriatric group day care and its effect on nursing home placement: An 18-month assessment," Gerontologist, 13(3): 97, 1973.

Effort-Shape:

Bartenieff, I. and Davis, M., Effort-Shape Analysis of Movement: The Unity of Function and Expression. New York: Albert Einstein College of Medicine, 1965.

Bartenieff, I., Davis, M., and Paulay, F., Four Adaptations of Effort Theory in Research and Teaching, New York: Dance Notation Bureau, 1970.

Laban, R. and Laurence, F. C., Effort, London: MacDonald and Evans, Ltd., 1974.

North, M., Personality Assessment Through Movement, London: MacDonald and Evans, Ltd., 1972.

I. Conceptual foundations for teaching dance to the elderly.

Topic I: What is the conceptual foundation for teaching dance to the elderly?

The conceptual foundation for teaching dance to the elderly is based upon five major areas:

1. Goals of creative dance with the elderly.
2. Body image.
3. Physiological aspects of aging.
4. Psycho-social aspects of aging.
5. Techniques of teaching.

A. What are the goals of teaching dance to the elderly? One's goals should include the following points:

1. Physical goals: One should strive to maintain and enhance functional capacities such as flexibility, endurance, and cardiovascular functioning.

2. Perceptual motor goals: One should strive to maintain and enhance balance, coordination, (eye-hand, eye-foot), kinesthetic awareness, and spatial relationships.

3. Physiological goals: One should strive to

a. Enhance and improve self-esteem and feelings of well-being.

b. Enhance and develop an awareness of range of movement qualities (effort-shape concepts of strong-light, direct-indirect, and quick-sustained).*

c. Convey a sense of joy in movement and to develop a positive regard toward movement.

d. Increase each individual's awareness of his/her potential for creativity.

4. Psycho-social goals: One should strive to increase eye contact, touching, and other forms of non-verbal communication.

5. Social goals: One should strive to increase social interaction and mutual support.

6. Physical/Psychological/Social goals: One should teach principles of self-monitoring and reinforce, evaluate, and oversee every individual's self-monitoring capacities.

B. What is body image?**

1. Body image refers to the constellation of attitudes about size, body boundaries, weight, strength, shape, and proportions,

---

*This goal should be deleted if students are not trained in effort-shape.

**The rationale for placing the section on body image at the beginning of the course is to provide the students with an opportunity to be comfortable in working together and to become aware of each other's movement style.

and feelings about mobility regarding one's body. Obviously, perception is a profound mediating variable affecting body image.

2. Both conscious and unconscious attitudes are involved in body image. There is an interaction between body image and experience. Body image is always changing, depending on one's life experience. Body image is not visual, but internal. Body image is the bodily representation indicative of the self as it is affected by emotional experience. Each body sector is associated with a fairly distinct conflict or tension theme.

3. Body image is developed through movement, dreams, images, pain, environment, territory, clothes, hairstyle, and make-up. How one relates to one's body in space or to objects and to space surrounding one's body or objects are also parts of body image.

LEARNING ACTIVITY:

Objective: To aid the student in developing an understanding of body image. (Paper and crayons or colored pencils are required.)

1. Discuss the concept of body image. What do you like and dislike about your body? What would you change? Note that few people are perfectly content with their bodies. Some that are, should not be!

2. Conduct the following experiential exercise: Instruct students to draw a person and put aside the drawing when finished. Stand with your eyes closed. Take the time to pay attention to your breathing, where your weight is, and how the floor feels. Moving at your own pace, move each body part, starting with the head and being sure to move each muscle. If you need to sit down or lie down, do so. Go through the same process, touching each body part. (During the moving and touching of the

body parts, guide students' awareness verbalizing texture, colors, sensations, tensions, etc.)

Visualize the room you are in (its size, the people in it, etc.). Then, when you are ready, open your eyes. Now you may begin to move in your kinesphere, the reach space surrounding your body. Feel the edges of the kinesphere with different parts of your body. What kind of texture does the edge of your kinesphere have today? When you are ready, move your kinesphere around the room. Move with awareness of the space around you and your relation to others. You may or may not find yourself interacting with others.

Take another sheet of paper and make another drawing of a person.

3. Ask the students to talk about their experience and to react to their "before" and "after" drawings. Students will want to respond to each others' drawings. Relate their reactions to the concept of "body image."

Discuss aspects of aging that affect body image.

a. There are cultural stereotypes which state that growing old is a disease or that it means becoming weak, wrinkled, and less mobile.

b. Reduced touching and movement, often concomitant with aging, affect body image.

c. Many elderly feel that because they are old, they cannot move or dance. As they experience themselves moving in a dance class and touching each other, this body image attitude should change. Did it? Did it affect body image and a sense of self-esteem and self-worth?

4. The student is assigned at least two readings from the starred (*) resources below. The student is to write a brief summary of two resources, relating them to working with the elderly.

5. Students write in a personal journal descriptions of their own body images; a description of the image of one's grandparents' bodies; and a description of the perception of older bodies in general. Is there a negative or positive attitude toward older bodies? Does the perception change over the duration of the course? Why might one find older bodies attractive on the one hand and repulsive on the other?

Resources:

*Fisher, S., "Experiencing your body: You are what you feel," Saturday Review, July:27-32, 1972.

*Fisher, S. and Cleveland, S. E., Body Image and Personality, Princeton, N.J.: D. Van Nostrand, 1958. (Reprint ed., New York: Dover Publications, 1968.)

Hunt, V., "The biological organization of man to move," Impulse: The Annual of Contemporary Dance, pp. 51-62, 1968.

*Lowen, A., Betrayal of the Body, New York: Macmillan, 1967.

May, P. R. A., Wexler, M., Salkin, J., and Schoop, T., "Non-verbal techniques in the re-establishment of body image and self identity: A preliminary report," Psych. Res. Rep., 16:68-82, 1963.

*Schilder, P., The Image and Appearance of the Human Body, New York: International Universities Press, 1950.

Topic II: What are the physiological aspects of aging as they pertain to dance?

A guest lecturer proficient in the physiology of aging presents a lecture on the physiological aspects of the aging process, including a discussion of the effect of exercise and relaxation on such diseases as arthritis and heart disorders. The guest lecturer should attend at least two dance classes for the elderly before presenting. Possible community resources for lecturers are nurses working in nursing homes,

medical doctors specializing in geriatrics, or specialists in the physiology of exercise who work with the elderly.

Refer to Module 2, the Physiological Aspects of Aging for further explanation.

LEARNING ACTIVITIES:

Objective: To apply the concepts of age-related physiological processes to teaching creative movement.

1. Student describes the effect of exercise and relaxation on the physiological aging process and on arthritis and heart disorders.

2. Student identifies four exercises that facilitate flexibility, circulation, balance, and coordination. For example:

a. Flexibility: slow head circles to increase flexibility at the neck joint.

b. Circulation: slow breathing.

c. Balance: standing, weight on one leg, pick up the other leg so foot touches ankle (or calf, or knee).

d. Coordination: sitting, arms and legs open out and close together; then open and close in opposition to each other.

3. Student identifies an exercise that does not facilitate either flexibility, circulation, balance, or coordination, yet may appear to do so. For example, making a fist and opening the fingers suddenly does not increase circulation in the fingers.

4. Students discuss the need for safety in classes. They should illustrate (perhaps with role playing) the application of safety principles in their classes. (This section is related to concepts of self-monitoring as explained in the section on techniques of teaching.)

a. The teacher can incorporate support systems into classes, e.g., holding hands in a circle, holding onto a chair while doing side bends, or using the back of a chair as support.

b. When people have limited capacities such as impaired sight, hearing, balance, or coordination, the teacher needs to work with and not against the limitations. If someone is in a wheelchair or uses a walker, cane, or crutch, the teacher can work creatively with the support system in the design of class exercises and improvisations.

c. Special attention needs to be paid to those with heart problems, arthritis, or diabetes.

d. Medical or release forms may be required.

Resource:

Bakerman, S. (ed.), Aging Life Processes, Springfield, Ill.: Charles C Thomas, 1969.

Topic III: What are the psycho-social aspects of aging which affect teaching creative dance to the elderly?

Although there are many psychological and sociological factors affecting the elderly person's day-to-day life, the following have been chosen for their pronounced influence (see modules on Psychology of Aging and the Sociological Aspects of Aging for additional comment).

Primary psycho-social factors:

A. Isolation, reduced social interaction, reduced support system.

B. Resistance to moving and dancing. (Upon introduction to dance classes, senior citizens frequently say, "I'm too old to dance.")

C. Cultural differences. Such differences should influence one's choice of movement patterns and ideas. For example, in the Spanish culture, moving in the far reach of the kinesphere is not desirable; different cultural groups may respond to specific types of music and dance.

D. Death of a participant (see Module 4, The Newest Frontier for HPERD: Death and Death-Related Behavior).

LEARNING ACTIVITY: Part I

Objective: To become familiar with terminology, theory, and relevant psycho-social implications for creative movement.

1. Discuss A, B, and C. Reinforce the concept of individual differences, especially with regard to cultural differences. Stress the role that dance plays in terms of stress prevention, intervention, and postvention.

2. Have students read at least two of the resources listed below.

Resources:

Maas, H. S. and Kuypers, J. A., From Thirty to Seventy: A Forty-Year Longitudinal Study of Adult Life Styles and Personality, San Francisco: Jossey-Bass, 1974.

Maddox, G. and Eisdorfer, C., "Some correlates of activity and morale among the elderly," Social Forces, (40):254-260, 1962.

Neugarten, B. L., "Personality and patterns of aging," Gawein, (13): 249-256, 1965.

Polhemus, T. (ed.), The Body Reader, New York: Pantheon Books, 1978.

LEARNING ACTIVITY: Part II

Objectives: To expose the students to the concept of death. To sensitize the students to the reality of a participant's dying (see Module 4 on death and dying).

To explore the implications for creative movement as a vehicle contributing well-being although some participants may be terminally ill.

1. Audiovisual aides such as the film Peege may be useful for stimulating discussion.

2. Discussion should include questions that will raise issues such as: Can you accept the death of a participant? Will this make you not want to become close to participants for fear of unexpected loss? What would you do if a participant died in your class?

Reference:

Peege, Phoenix Films, 743 Alexander Road, Princeton, N.J. 88540.

II. Field experience in teaching dance to the elderly.

Topic I: Techniques of teaching dance to the elderly.

The basic dance technique is creative movement/modern dance. This approach to movement is flexible enough to respond to the needs and moods of the elderly and therefore promotes freedom of expression, communication among participants, and the contribution of each senior citizen. Other techniques, such as folk dance or massage, may also be used.

A. A basic principle underlying any course is that of self-monitoring, e.g., taking responsibility for paying attention to the signals provided by one's body. The following guidelines are strongly suggested as means of self-monitoring in creative movement class.

1. Avoid exercising if you feel any:
   a. Pain or discomfort.
   b. Shortness of breath.
   c. Heart palpitations.

d. Dizziness.

e. Nausea.

f. Clammy skin.

2. Avoid dance/exercise after eating a heavy meal.

3. Avoid wearing clothing that will interfere with circulation or jewelry that is heavy or that gets in your way.

4. Avoid dance/exercise in air that has a poor air-quality index.

5. Avoid dance/exercise in excessively hot weather.

B. The structure of a dance/creative movement class.

1. Preparation: The class is conducted in a circular seating arrangement. Chairs should be set before the participants arrive so as not to invite confusion and disruption of the group.

2. Greeting: Teacher greets each senior citizen with a handshake or other appropriate greeting (preferably a hug). Purposes: to recognize and welcome each individual into the group separately; to find out how each person is feeling so that the teacher is aware of particular circumstances and can attend to the individual accordingly; to help impaired individuals (blind, lame, etc.) to their seats.

3. Warm-up: Begin each class with a warm-up, sitting in a circle in chairs (unless standing is more appropriate), to get the bodies going and to get a sense of the mood of each person in the group. Warm-up often begins with breathing exercises and may be led by the teacher or by the senior citizens. Warm-up is a time to focus on physical objectives: improving flexibility, balance, coordination, and cardiovascular functioning. Encourage participants to do exercises at home.

4. Dance improvisation: Encourage a positive group experience in which each person's own movement preferences are acknowledged. This may be done by passing the leadership of the group around the circle, by each person saying his or her name and moving according to how he or she feels that day. Dances may be created on themes that are of interest to a particular group, e.g., seasons, sports, cooking, etc. Use a wide variety of music and sound and also draw upon familiar songs. Experiment with props such as parachutes or sheets, ribbons, colorful handkerchiefs, etc.

5. Group ending: Bring the class to a clear ending with some shared group movement. This serves to promote group cohesion.

Resources:

Body awareness:

Bertherat, T. and Bernstein, C., The Body Has Its Reasons: Anti-Exercise and Self Awareness, New York: Random House, 1977.

Feldenkrais, M., Awareness Through Movement, New York: Harper and Row, 1972.

Creativity:

Lowen, A., Pleasure, A Creative Approach to Life, New York: Penguin Books, 1970.

May, R., The Courage to Create, New York: Bantam Books, 1976.

Education:

Lyon, H., Learning to Feel--Feeling to Learn, Columbus, Ohio: Charles E. Merrill Publishing, 1971.

Rogers, C., Freedom to Learn, Columbus, Ohio: Charles E. Merrill Publishing, 1967.

Non-verbal communication:

Davis, F., Inside Intuition: What We Know About Nonverbal Communication, New York: McGraw-Hill, 1973.

Lowen, A., The Language of the Body, New York: Macmillan, 1958.

Schutz, W., Joy, New York: Grove Press, 1968.

Stone, E., "Psychology and the arts," Psych. Today, July:14-16, 1977.

Creative Movement and Fitness:

Fitness Challenge in the Later Years, Washington, D.C.: U.S. Government Printing Office.

Caplow-Lindner, E., Haycaz, L., and Samberg, S., Therapeutic Dance/Movement, New York: Human Sciences Press, 1979.

H'Doubler, M., Dance a Creative Art Experience, Madison, Wisc.: University of Wisconsin Press, 1966.

Hornbaker, A., Preventive Care, New York: Drake Publications, 1974.

Leslie, D. and McLure, J., Exercises for the Elderly, Des Moines, Iowa: University of Iowa, 1975.

Mettler, B., Materials of Dance as a Creative Art Activity, Tucson, Ariz.: Mettler Studios, 1960.

Neimark, P., A Doctor Discusses Care of the Back, Chicago: Budlong Press, 1975.

Rosenberg, M., Sixty-Plus and Fit Again, New York: M. Evans and Company, 1977.

Sanders, V., "Shape up!," Progressive Fitness for Practical People, New York: McGraw-Hill Ryerson Limited, 1975.

Snider, A., A Doctor Discusses Learning How to Live with Nervous Tension, Chicago: Budlong Press, 1975.

Topic II: What is an adequate field experience in teaching dance to the elderly?

A. Organization of field experience.

1. Supervisor establishes field placements. Suggested resources for placements are senior citizen residences, recreation programs, and senior citizens centers.

2. Students will work in teams of two, for purposes of mutual support and increased learning. At one site, student A is the primary teacher, and student B is the assistant teacher. At the other site, they reverse roles. The two sites assigned to one team should differ in type of population and environment, if possible.

3. Enrollment should be limited because of the amount of supervision required. Graduate students already trained in teaching dance to the elderly may be available as supervisors.

4. A suggested work plan for the field experience is included at the beginning of this module.

B. The objectives of field experience for student teachers.

Objective 1: Student comprehends the structure and function of the assigned sites.

LEARNING ACTIVITIES:

Objective: To prepare students to teach independently.

1. Student visits each site before beginning teaching, with the team teacher and the supervisor to assess the environment vis-a-vis the needs of the elderly.

2. Student submits to the supervisor a description of the following in order to understand the population's make-up and specific problems:

a. Age range, cultural background, and physical and emotional health of the population.

b. How the senior citizens travel to the site, how much time they spend there, the effort involved, etc.

c. Site environment--size, light and glare, noise levels (white noise), etc.

d. How the site staff is organized.

e. How the site staff views dance.

f. How the site is funded.

g. How dance fits in with other activities.

h. Potential scheduling problems.

Objective 2: To prepare the student to teach independentl with the use of lesson plans and set goals.

LEARNING ACTIVITIES:

1. Student sets appropriate goals for the classes after the first site visit, and re-evaluates these goals during the field experience.

2. Student prepares and submits weekly lesson plans for ten 45-minute classes.

3. Student teaches ten classes as a team leader and assists in ten classes as a team assistant.

4. Students evaluate each lesson in their personal journals.

5. Student develops and evaluates personal goals for the field experience.

6. Supervisor meets weekly with each team, as indicated in the work plan.

7. Student performs the following:

a. Student demonstrates the ability to capture the attention of the senior citizens, to work with them appropriately, and to keep a class going.

b. Student implements the basic approaches to teaching described in the section above, "Techniques of Teaching Dance to the Elderly."

c. Students develop working relationships with their teammates: assisting in each other's classes, providing mutual support, and stimulating each other's thinking.

d. Student has an understanding of the contributions and growth potential of senior citizens.

e. Student is able to evaluate his or her own teaching during the supervision sessions and his or her journal; student develops a sense of personal teaching style.

f. Student is responsive to the supervisor's comments.

g. Student is more confident about the ability to share personal dance experience through teaching; student feels more confident about his or her own dancing and performing.

Objective 3: Student understands how creative dance classes for the elderly relate to aging and to the dance profession.

(This objective should be addressed at the end of the field experience if there is time.)

LEARNING ACTIVITIES:

1. Discuss the aging services network, what the priorities are in aging services, and where the job opportunities are.

2. Discuss the various kinds of dance activities that older Americans are involved in.

3. Discuss the next step for each student's professional development.

MODULE 6: GENERAL FITNESS

INTRODUCTION

Fitness as an overall concept for the elderly includes social, intellectual, and emotional as well as physical elements. These factors differ in relative importance from one period of life to another depending on varying individual roles and responsibilities. This module is concerned with the part that general fitness plays in preparing the older adult for effective living.

Our stress and public health models, discussed in the Introduction, once again provide the framework for this module. The stress model suggests that HPERD programs are mediating variables influencing healthy outcome. The public health model provides preventive, interventive, and postventive phases of interaction and intervention to enhance good health outcome. The preventive phase deals with formal and informal education in areas germane to the physical fitness of the total person. The interventive phase of this module refers to programs that promote physical fitness in the here and now, while the postventive phase refers to both programs and education for the adult who has been affected by illness, disease, or physical impairment. Here, the goal is rehabilitation.

In this dynamic age of machines, when science and invention have supplied us with so many labor-saving devices, when transportation requires such limited physical effort, when so many types of entertainment have made us spectators more than participants in our leisure-time activities, we can no longer expect to develop and maintain a state of fitness as part of the regular course of daily living. Therefore, we

must make every effort possible to encourage our older citizens to adopt a regimen of positive health practices and to participate in appropriate exercise and activity.

The results of good general fitness are evidenced in a variety of ways. Carefully planned exercise programs and other fitness procedures improve cardiovascular health. It is quite distressing to see the results on the human body when general fitness practices are neglected. For example, the heart and blood vessels begin to lose their efficiency. An example of this phenomenon can be seen in normal healthy persons confined to a month of bed rest and inactivity. These individuals experience an acceleration in the resting heart rate, which is an indication that the heart, after a period of bodily inactivity, must work harder to pump the required amount of blood. Conversely, it has been demonstrated in numerous physiology laboratories that the efficiency of the heart to pump blood is increased with proper training procedures.

As people get older they may experience other chronic and debilitating fitness-related problems. These chronic conditions cause a great deal of discomfort, pain, and disability. Frequently, these conditions are the result of poor general health habits over a number of years. These habits, or stressors, take their toll on the body and insidiously interfere with the ability of the body to function normally and effectively. This breakdown of the body's processes accelerates with greater intensity as the person ages.

The truth is that many chronic diseases may be prevented or at least postponed, resulting in increased opportunities for optimal well-being and extended longevity.

This module will focus on the following major themes:

1. Physiological age-related changes affect the performance of older adults.

2. Programs of physical activity must be adapted to the target population.

The learning activities are designed to help the reader translate each concept into HPERD activity.

OBJECTIVES OF THE MODULE:

Upon completion of this module, the HPERD professional should be able to:

1. Identify special activity needs of the elderly as modified by the normal and abnormal processes of aging.

2. State factors that are included in a definition of physical fitness.

3. State specific methods to stimulate, motivate, and maintain fitness in the elderly through activity.

4. Utilize basic evaluative methods in planning and modifying an exercise program for the elderly.

5. Develop and utilize simple, creative devices to enhance exercise program participation by the elderly.

6. Plan a physical activity program to meet the needs of the elderly and/or handicapped persons and utilize basic safety principles.

7. Train interested persons for leadership roles in activity/ fitness programs.

I. Physiological age-related changes affect the performance of older adults.

Concept I: Exercise requires the response and integration of functions of many organs and systems.

A. Limitations of exercise performance might be attributed to limitations of the response of a single organ system or to the failure of several systems to integrate.

B. Several age-related changes of most systems have been reviewed in Module 2 on the physiology of aging. Some age changes specific to the physiology of exercise are summarized below. Refer to Module 2 on physiology and Module 7 on health education for more information.

C. Muscle.

1. Muscles are basically differentiated into two groups, fast and slow muscles and muscle fibers, according to their metabolic demands for speed and/or endurance. This differentiation is reflected by different degrees of ATP--an activity (39). Fast and slow muscles have different enzyme patterns or relations of glycolytic to oxidative enzymes. There is evidence of a progressive loss of this differentiation with age. Glycogen and potassium contents are higher in fast than in slow muscles of old animals (39).

2. Creative phosphate is considerably higher in fast than in slow muscles; both decrease in old age, but this decrease is more pronounced in fast muscles.

3. The above trend is also seen in the changes of glycogen and potassium contents in fast and slow muscles in old age and

signifies a relative shift from an anaerobic to aerobic type of metabolism (85). This is also coupled with a general trend of leveling out of metabolic differences between fast and slow muscles in old age (39).

D. Strength and aging.

1. Muscular strength in males increases until approximately 30 years of age and then starts to decline gradually. This decline continues until the sixth decade, at which time there is a sharp drop in strength (4).

2. When different muscle groups are studied separately, it appears that they reach maximum strength and then begin to decline corresponding to different ages. For both males and females a maximum strength for fingers and arms is reached at age 20 and remains constant until age 40, when a decrease begins. For trunk and leg muscles the maximum strength is reached at age 30 for men and age 25-30 years for women. Astrand and Rodahl place the decline in strength from 20 to 60 years at about 10 percent of the strength measurements made at age 20 (4).

3. As with strength, endurance declines with age. Fatigue rates are also affected with age. Fatigue rates have been shown to be greater in old men during isometric contractions (82).

E. Respiratory capacity: Blood oxygenation is a prerequisite to adequate muscular function. Since some of the fundamental functions of the lung are impaired with age, the older individual must move in excess of 50 percent more air in and out of the lungs to maintain the increased activity of the exercising muscle (92).

F. Physical working capacity (PWC), measured by maximal oxygen consumption, gradually declines after reaching a maximum value

in early adulthood. For men the maximal values were found at a mean age of 17.4 years, after which the values declined to less than half those values at a mean age of 75 (77). For women maximum values were found between 20 and 29 years and dropped by 29 percent between the ages of 50 and 65 (5).

G. Body composition changes with age. Data on the composition of the human body as it ages in this particular sample showed that there was a mean increase of 27 pounds of fat from age 20 to age 55, while fat-free body weight had actually decreased (12, 24). Other studies have shown that the body loses active protoplasm at approximately 3 to 5 percent per decade after age 20-25 (24). Thus even if we maintained body weight at our young adult value, we would still be getting fatter.

H. Cardiovascular changes: Cardiac output at rest decreased by approximately 1 percent per year (11), and a loss in strength of the myocardium is estimated to be about 0.85 percent per year after age 20 (87). Robinson's classic study showed a decrease in heart rate due to age (77), as well as a decrease in heart rate, which declines from 190 to 195 beats/minute at age 20 to about 160 beats/minute at age 60. DeVries points out that assuming a resting rate of 70, a lowered capacity for heart rate response would result (approximately 0.56 percent per year from age 20 to 70 (24).

LEARNING ACTIVITIES:

Objective: To enhance the understanding of physiological changes the body experiences during exercise.

1. If the students are not familiar with evaluative techniques of physical fitness, set up a laboratory period with a step-test or graded treadmill test.

2. Discuss differences in results obtained from cross-sectional versus longitudinal data. What implications do these sometimes contradictory results have for the HPERD professional?

3. Discuss procedures used to collect data in studies assessing the fitness level of older adults. Also, if studies compare younger and older subjects, note the baseline fitness levels and homogeneity of the independent samples.

Concept II: It helps to be in relatively good condition in order to enjoy physical activity.

A. Terms with which the student should be familiar regarding physical activity include strength, muscular endurance, cardiovascular endurance, flexibility, balance, kinesthetic awareness, reaction time, movement time, response time, speed, agility, power, and eye-hand/eye-foot coordination. Since most activities demand specific skill use, an accurate understanding of the above terms is necessary for proper exercise prescription.

B. One will note that changes occur in one's ability to perform the above skills. This is partially due to aging processes, as with the loss of flexibility, and partially due to the lack of practice of certain tasks. Age-related changes relevant to physical activity include both the physiological and psychological realms. For example, a decrement in sight surely would affect reaction time in a badminton game, just as inner ear problems may affect balance and, thus, eye-foot coordination. The changes one experiences in the physical fitness components mentioned in point A may be delayed with continued use of the body;

however, one cannot forestall eventual decline in most of the areas mentioned (71).

C. Some disorders, common to the older adult, have been described in the health education module (e.g., arthritis, rheumatism, diabetes). These disorders must be fully understood in order for one to effectively prescribe activity for the elderly. It is strongly recommended that disorders of the cardiovascular system (hypertension, heart disease, etc.) and the respiratory system (emphysema, etc.) be understood in light of the limitations they place upon the body. Contraindication for exercise should be thoroughly discussed in terms of affecting health and safety of the individual (9, 89, 76, 19). Note that although backaches are not among the disorders mentioned, they are common among older adults. Do not neglect the role of exercise and the contraindications of specific exercises (i.e., toe touches, double leg scissors, etc.) for individuals suffering from lower back pain.

LEARNING ACTIVITIES:

Objectives: To list specific and common physical disorders that occur in the elderly.

To discuss community resources available for research, detection, and dissemination of information regarding health disorders commonly affecting the elderly.

1. List and describe at least three specific and common disorders that may occur in the elderly person in each of the following systems:

   a. Cardiovascular.

   b. Respiratory.

   c. Musculo-skeletal.

d. Gastro-intestinal (alimentary tract).

e. Special senses (vision, hearing, touch, taste, smell).

2. Discuss various community resources and agencies that participate in the research, detection, and/or dissemination of information regarding any three of the disorders described. Include name of the resource or agency, purpose, funding, and methods of referral or how to help the person better utilize the resource.

Objectives: To describe six components of physical fitness.

To describe changes in those components of fitness that occur as a result of the normal aging process.

To list activities which contribute to each component of fitness, the body system affected, and modifications necessary to accommodate the changes of age.

3. Define each of the following components and list a minimum of five activities that promote the development of each component of physical fitness:

a. Cardiovascular endurance.

b. Muscular endurance.

c. Flexibility.

d. Strength.

e. Agility.

f. Balance.

4. Describe the normal changes seen in each component of physical fitness throughout the aging process.

5. Modify, if necessary, the list of activities presented in point 3 to meet the special needs of the elderly. For each activity presented, describe:

a. The body system most affected.

b. The condition proposed to be prevented through the selected activity.

c. What modifications have been made to meet the special needs of the elderly (e.g., holding on to a chair to maintain balance while performing an activity, etc.).

II. Programs of physical activity must be adapted to the target population.

Concept I: Development of the various components of physical fitness can be accomplished through the use of different types of exercise.

A. Components of physical fitness usually are grouped into the areas of (1) muscular strength and endurance, (2) flexibility, and (3) cardiorespiratory endurance (33). Different types of exercises promote fitness in each category. A review of the various types of exercise would include definitions of the following terms: isometric, isotonic, weight training, aerobic, and anaerobic exercise.

1. For example, isotonic exercises (involving muscular contraction and movement of a joint) increase strength, promote circulation and cardiovascular endurance, and maintain joint flexibility (33). Isometric exercises (involving muscular contraction but not movement of the joint) increase strength and economize in the time spent in exercising but contribute little to cardiovascular fitness and to joint flexibility (2). Isometric exercises are contraindicated for older adults, primarily due to the ramifications of the Valsalva maneuver, where the glottis is closed upon expiratory effort. Intrathoracic pressure increases, impairing both the venous return and the cardiac output. Hyperventilation following Valsalva's maneuver may cause fainting (4).

2. Flexibility is maintained with normal use and is decreased with disease. Body efficiency and grace are reduced as flexibility decreases. Immobilized or restricted joint action results in a loss of flexibility.

3. Since stretching exercises are among the most favored with senior citizens, it may be relevant here to dispel the myth of the "bounce" technique. Sudden rapid motions performed to induce stretch (bouncing or jerking against the muscles to be stretched) induce the "stretch reflex," causing the affected muscle to tighten, and so are less effective (2). Slow stretching motions aided by the pull of gravity are most effective.

4. Flexibility is important because strength is basically wasted if proper muscle, fascia, and joint flexibility is not maintained.

B. A review of kinesiology at this point may be helpful to the student.

1. The articulation of two or more bones allows various types of movement. The extent and kind of movement determine the names applied to joints (i.e., hinge, condyloid, arthrodial amphiarthrosis, and ball and socket joints).

2. Joints and proper muscle tone are responsible for a wide range of movements. These movements of the body include flexion; extension; elevation; depression; rotation outward, inward, upward, and downward; promotion, supenation; abduction; adduction; circumduction; and hyperextension (61).

C. Exercises for preventive, interventive, or postventive measures must be scientifically derived and accurately taught and learned. Thus a student must understand simple body mechanics in order to prescribe exercises. In order to be effective for the individual performing them, exercises must be practiced regularly (2).

D. The following points should be considered in the development and choice of any exercise (2).

1. What is the purpose of the exercise?
2. Does it accomplish that purpose?
3. Does it violate any principles of sound body mechanics?
4. What are the main joints involved?
5. What are the main muscle groups involved?
6. Is the exercise primarily for flexibility or for strength or endurance?
7. Is the intensity of the exercise mild, moderate, or vigorous?
8. What elements of danger are involved? What cautions should be remembered in its assignment and its execution?
9. Is the exercise good for more than one specific area of the body?
10. Can one measure progress through this exercise?

E. When selecting exercise for the individual, principles of progression should be followed. One classification of exercise, which grades them from easy to difficult, lists them as passive, assistive, active, and resistive (2).

1. A passive exercise is one in which the body part is put through a range of motion for the individual.

2. An assistive exercise is one in which the body part is moved for the individual, but in which one assists in the movement to the extent of the individual's ability.

3. An active exercise is one in which the individual moves the body part alone and usually works against the counter forces of gravity.

4. A resistive exercise is one in which the individual exercises against some form of resistance.

LEARNING ACTIVITIES:

Objective: To identify five types of exercise including the purpose and advantages of each.

1. Describe each of the following types of exercises: include (1) definition of the term, (2) purpose of the exercise, (3) advantages of each, (4) disadvantages of each, and (5) an example of each.

a. Isometric.

b. Isotonic.

c. Weight training.

d. Aerobic.

e. Anaerobic.

2. Describe to an elderly person three of the above types of exercise. Include in the description the purpose of the exercise, method of performing, and the appropriate number of repetitions.

3. Contrast and compare various exercise programs (i.e., Cooper vs. Morehouse).

4. Films available to aid discussion are referenced in the appendix.

Concept II: The optimum training regimen for an elderly person is marked by safety, effectiveness, strong motivational appeal, and low unit cost (79).

A. Some exercise programs for middle-aged and older citizens have had a more than 50 percent injury rate within the first few weeks of conditioning. Factors contributing to a high injury rate include (79):

1. Clumsiness associated with lack of recent practice of a skill and deterioration of balance.

2. Obesity, increasing the strain per unit section of tendon.

3. Shortening of tendons associated with many years of inactivity.

4. Failure to take an adequate "warmup."

5. Violent calisthenics, especially rapid twisting movements and excessive stretching.

6. Too rapid a progression of training, with exercise continuing when the subject is more than pleasantly fatigued.

7. Exercise on a hard, uneven, or icy surface.

8. The use of shoes with inadequate heels and poor ankle support.

B. Catastrophe, in terms of cardiac arrest, is less likely if a safe level of exercise has been defined by a careful stress test (79). Also, if the subjects monitor themselves by taking their heart

rate at designated intervals and refrain from sustained isometric exercise, then the risk factors are at a minimum.

C. Warning signs of overexertion are generally as follows:

1. Breathlessness.
2. Rapid pulse.
3. Pounding of the heart.
4. Dizziness.
5. Tightness or pain in the chest.
6. Nausea.
7. Loss of muscle control.

D. Shephard states that often our concern with safety may interfere with the effectiveness of the exercise program. "There is some danger that caution in the exercise prescription may preclude the development of an effective training programme; a nice judgement must be made between necessary prudence and timid incompetence" (79, p. 178).

Examples of where one should place emphasis to devise effective exercise programs are:

1. To improve cardiorespiratory endurance, one must focus on the intensity of training and the initial fitness of the subject.

2. To improve overweight problems, individuals must exercise for a sufficient duration so as to expend an adequate number of calories.

E. Shephard (79) also notes expectations of the elderly with regard to exercise programs. In brief, they like a class tailored to their specific needs, where they can obtain safe instruction and an effective regimen. There is also a desire for well-qualified leadership,

and "it is critical to find an instructor with a warm, outgoing personality--a person who appreciates not only the strengths, but also the weaknesses of the elderly" (79, p. 179).

F. Since a majority of elderly are restricted in income, one's exercise program should not demand the purchase of additional equipment. Resourcefulness and creativity are the keys to a successful program. Ideas for equipment and activities are often taken from elementary school manuals and modified to suit the adult population. Also, magazines for the general public offer ideas regularly (48).

G. Psychological benefits associated with regular physical activity are generally reported as an increased sense of well-being (62, 18). Improvement of self-image and self-concept due to training is not always reported (62). However, findings from studies have important implications for programing. Shephard summarizes results of such studies as follows (79, p. 201):

> Improvements of body image undoubtedly encourage a subject to persist with an exercise program. On the other hand, it would appear that over-zealous encouragement of a low frequency/low intensity exerciser can have the negative effect of weakening body image. A nice judgement is then needed to provide effective conditioning without excessive persuasion. Individual exercise prescriptions must be reviewed by a class leader who is not only enthusiastic, but is sensitive to the physical limitations of an aging population.

LEARNING ACTIVITIES:

Objectives: To incorporate safety in the planning, organization, presentation, and evaluation of physical activities for the elderly.

To describe an exercise prescription, how it is derived, and its purpose.

To list precautions necessary in presentation of exercise programs for the elderly.

To list possible warning signals when the exercise session has been too demanding.

To identify common and normal conditions that may occur as a result of mild exercise in an unconditioned individual and the suggested method of treatment.

1. For each of the following positions, demonstrate ten physical activities which utilize a wide variety of muscle groups and can be performed safely:

    a. In bed with assistance.

    b. In bed without assistance.

    c. On a chair.

    d. Standing, holding on to support.

    e. Standing in one place without support.

    f. Moving freely in an ordinary room.

2. Discuss physical conditions that might necessitate activities from the positions described in a, b, c, d, and e above. Include a description of the hazards being avoided through each of these modified positions.

3. Describe the components of exercise prescriptions. Include:

    a. Definition of an exercise prescription.

    b. Purpose.

    c. Assessment areas.

    d. Methods of assessment.

    e. Monitoring of response to exercise.

    f. The need to re-evaluate.

4. Present a list of precautions for an unsupervised physical activity program to an elderly person. Insure that the precautions are understandable and not frightening or discouraging to the elderly person.

5. Describe common conditions (e.g., leg cramps) which occur at the beginning of a physical activity program by a physically unfit person. Include interventive or preventive measures which may be used to relieve or prevent the conditions safely.

6. Respond to an elderly person's question, "Do I have to get my physician's permission to exercise?"

7. Describe how a physically fit person of any age is different than a physically unfit person of comparable age in terms of

a. Physiological differences.

b. Psychological differences.

c. Societal differences.

8. Cite from at least three professional and scientific sources positive responses to exercise/physical activity as seen in the elderly. Include:

a. Source.

b. Number of subjects included in study.

c. Type of program tested.

d. Responses seen in population.

e. Implications of the study on the development of physical activity programs for the elderly.

f. Your evaluation of the importance of the study.

Objectives: To design simple devices which can be utilized in exercise programs for the elderly.

To evaluate commercially produced exercise equipment as to cost and effectiveness.

9. Most exercises should be simple with a minimum of extra equipment to reduce costs and time spent in giving directions. However, a program may often be enhanced by designing low-cost, simple devices.

a. Modify a selected activity by designing and utilizing a simple, low-cost device.

b. Describe cost, construction (if appropriate), purpose, and use of the selected device.

c. Evaluate the effectiveness of the device in enhancing the activity.

d. If possible, show how the device may also be used to modify at least two other physical activities.

10. Demonstrate or illustrate the use of commercially produced device or equipment for physical activity.

a. Describe cost, construction, purpose, and use of the equipment.

b. Evaluate the effectiveness of the device in enhancing the activity selected.

c. If possible, show or tell how the device may also be used to modify at least two other physical activities.

d. Compare the value of the commercial device in enhancing the physical activity to the actual monetary cost. Would a "home-made" device produce the same result with less cost?

e. Evaluate the activity recommended by the producer of the equipment in light of the physical activity needs of the elderly.

REFERENCES

1. American National Red Cross, Adapted Aquatics, New York: Doubleday, 1977.

2. Arnheim, S., Auxter, D., and Crowe, W., Principles and Methods of Adapted Physical Education, St. Louis: C. V. Mosby, 1973.

3. Asmussen, E., "Muscle strength," Scan. J. Clin. Lab. Invest., (Suppl. 110-112), 1969.

4. Astrand, P. O. and Rodahl, K., Textbook of Work Physiology, New York: McGraw-Hill, 1977.

5. Astrand, I., "Aerobic work capacity in men and women with special reference to age," Acta Physiol. Scan., 49 (Suppl. 169), 1960.

*6. Barney, V., Hirst, C., and Jense, C., Conditioning Exercises, St. Louis: C. V. Mosby, 1972.

*7. Baumhouer, L., Handbook of American Aging Programs, Westport, Conn.: Greenwood Press, 1977.

8. Berland, T. and Addison, R., Living with Your Bad Back, New York: St. Martin's Press, 1972.

9. Biermann, J. and Tookey, B., The Diabetic's Sports and Exercise Book: How to Plan Your Way to Better Health, Philadelphia: J. B. Lippincott, 1977.

*10. Bowerman, W. and Harris, W., Jogging, New York: Grosset and Dunlap, 1967.

11. Brandfonbrener, M., Landowne, M., and Shock, N., "Changes in cardiac output with age," Circulation, 12:557-566, 1955.

12. Brozek, J., "Changes of body composition in man during maturity and their nutritional implications," Federation Proceedings, 11:784-793, 1952.

*13. Burton, R., et al., Key Issues in Health, New York: Harcourt Brace Jovanovich, 1978.

*14. Butler, R. and Lewis, M., Aging and Mental Health, St. Louis: C. V. Mosby, 1973.

*15. Casady, M., "Character lasts: If you're active and savvy at 30, you'll be warm and witty at 70," Psych. Today, 9(6):139, 1975.

16. Christensen, R. and Rankin, D., Easy Does It Yoga for Older People, San Francisco, Calif.: Harper and Row, 1975.

*17. Comfort, A., "Aging," The Biology of Senescence, New York: Holt, Rinehart and Winston, 1964.

18. Cooper, K. H., Aerobics, New York: Evans, 1968.

19. Crain, D., The Arthritis Handbook: A Patient's Manual on Arthritis, Rheumatism and Gout, New York: Exposition Press, 1972.

*20. Cureton, T., Physical Fitness and Dynamic Health, New York: Dial Press, 1965.

*21. Cushman, W., Reducing the Risk of Non-Communicable Diseases, Dubuque, Iowa: William C. Brown, 1970.

*22. Davis, E., Logan, G., and McKinney, W., Biophysical Values of Muscular Activity, 2nd Edition, Dubuque, Iowa: William C. Brown, 1965.

*23. Dempsey, J. and Reed, C. (eds.), Muscular Exercise and the Lung, Madison, Wisc.: University of Wisconsin Press, 1977.

24. deVries, H., "Physiology of exercise and aging," in D. Woodruff and J. Birren (eds.), Aging: Scientific Perspectives and Social Issues, New York: D. Van Nostrand, 1975.

25. deVries, H., "Physiological effects of an exercise training regime upon men aged 52-88," J. Geront., 24, 1979.

*26. Donaldson, R., and National Jogging Association, Guidelines for Successful Jogging, Washington, D.C.: National Jogging Association, 1977.

*27. Emmerton, B., Running for Your Life, New York: World Publishing, 1970.

*28. Ensor, P., et al., Personal Health Confronting Your Health Behavior, Boston, Mass.: Allyn and Bacon, 1977.

*29. Fox, S., III and Haskill, W., "Physical activity and health maintenance," J. Rehabilitation, 32:89, 1966.

30. Frankel, L. and Richard, B., Be Alive as Long as You Live, Mobility Exercise for the Older Person, Charleston, W. Va.: Preventicare Publication, 1977.

*31. Friedman, M. and Rosenman, R., Type A Behavior and Your Heart, New York: Knopf, 1974.

32. Gaitz, C., Varner, R., and Calvert, W., Realistic Expectations and Treatment Goals in Caring for the Impaired Elderly, Chicago: American Medical Association, 1977.

33. Getchell, B., Physical Fitness: A Way of Life, New York: John Wiley, 1976.

*34. Golding, L., The "Y's" Way to Physical Fitness, Emmaus, Pa.: Rodale Press, 1973.

*35. Golding, L. and Bos, R., Scientific Foundations of Physical Fitness Programs, 2nd ed., Minneapolis, Minn.: Brugess, 1970.

*36. Goldman, R. and Rockstein, M. (eds.), The Physiology and Pathology of Human Aging, New York: Academic, 1975.

*38. Guild, W., How to Keep Fit and Enjoy It, New York: Cornerstone Library Publication, 1964.

*39. Gutmann, E. and Hanzlikova, V., "Age changes in the neuromuscular system," Scientenchnica, pp. 80-88, 1977.

*40. Hafen, B., Prescriptions for Health, Provo, Utah: Brigham Young University Press, 1976.

*41. Harris, R., Statement Concerning Value of Regular Exercise Programs and Activity for Senior Citizens, Albany, New York: Center for the Study of Aging, Inc., 1975.

*42. Henkel, B., et al., Foundations of Health Science, Boston: Allyn and Bacon, 1977.

*43. Ismail, A. and Trachtman, L., "Jogging the imagination," Psych. Today, pp. 79-82, March 1973.

*44. Jarvik, L., "Thoughts on the psychobiology of aging," Amer. Psychol., May 1975.

*45. Johnson, R., Health in Action, New York: Holt, Rinehart and Winston, 1977.

*46. Johnson, P., et al., Sport, Exercise, and You, New York: Holt, Rinehart and Winston, 1975.

*47. Jones, K., Shainberg, L., and Byer, C., Total Fitness, San Francisco, Calif.: Canfield Press, 1973.

*48. Journal of Physical Education, Special Reprint, National YMCA Physical Fitness Consultation, March-April 1972.

*49. Journal of the South Carolina Medical Association, Suppl. 1, 65, 1969.

*50. Kalish, R., Late Adulthood: Perspectives on Human Development, Monterey, Calif.: Brooks/Cole Publishing Co., 1975.

52. Kasch, F. and Boyer, J., Adult Fitness: Principles and Practices, Palo Alto, Calif.: Mayfield Publishing Co., 1968.

*53. Kavanagh, T., Heart Attack? Counter-Attack! New York: Van Nostrand Reinhold, 1976.

54. Keleman, S., Fun with Aquatic Calisthenics, Lafayette, Calif.: Aquathenics of California, 1977.

*55. Kiphuth, R., How To Be Fit, New Haven, Conn.: Yale University Press, 1963.

56. Kraus, H., The Cause, Prevention and Treatment of Backache, Stress and Tension, New York: Simon and Schuster, 1974.

*57. Larson, L. (ed.), Fitness, Health and Work Capacity, International Standards for Assessment, New York: Macmillan, 1974.

*59. Leaf, A., "Getting old," Scientific American, Sept. 1973.

60. Lindsey, R., Jones, B., and Van Whitley, A., Body Mechanics, 3rd ed., Dubuque, Iowa: William C. Brown, 1976.

61. MacCallum, M., Fitness for People Over 60, Edmonton, Canada: Alberta Department of Recreation, Parks and Wildlife, 1976.

62. Massie, J. and Shephard, R., "Physiological and psychological effects of training," Med. Sci. Sports, 3:110-117, 1971.

*63. Mead, M., "What's ahead for the older American?," Christianity and Crisis, Nov. 15, 1971.

*64. Merrill, T., Activities for the Aged and Infirm: A Handbook for the Untrained Worker, Springfield, Ill.: Charles C Thomas, 1963.

65. National Association for Human Development, Exercise Activity for People Over Sixty, Washington, D.C., 1977.

66. National Association for Human Development, Join the Active People Over 60! A Model Exercise and Fitness Program for Older Persons, Washington, D.C.: President's Council on Physical Fitness and Sports, 1976.

67. National Association for Human Development, Basic Exercises for People Over Sixty, Washington, D.C.: U.S. Administration on Aging, 1976.

68. National Association for Human Development, Moderate Exercises for People Over Sixty, Washington, D.C.: U.S. Administration on Aging, 1976.

69. National Association for Human Development, Join the Active People Over 60!, Washington, D.C.: U.S. Administration on Aging, 1976.

*70. Neugarten, B., "Personality and the aging process," Geront., Spring 1972.

71. Norris, A. and Shock, N., "Exercise in the Adult Yeras," in W. Johnson and E. Buskirk (eds.), Science and Medicine of Exercise and Sport, New York: Harper and Row, 1974.

72. Peery, J., Exercises for Retirees, Milwaukie, Oreg.: private publication, P.O. Box 22081, 97222, 1976.

*73. Pollock, M., Wilmore, J., and Fox, M., III, Health and Fitness Through Physical Activity, New York: John Wiley, 1978.

*74. Powell, R., "Psychological effects of exercise therapy on institutionalized geriatric mental patients," J. Geront., 29, 1974.

*75. President's Council on Physical Fitness and Sports, "National adult fitnesses survey," Newsletter, Special Edition, May 1973.

76. Reichman, S., Breathe Easy: An Asthmatic's Guide to Clean Air, pp. 169-171, New York: Thomas Y. Cromwell, 1977.

77. Robinson, S., "Experimental studies of physical fitness in relation to age," Arbeits Physiol., 10:251-323, 1938.

*78. Schulitz, I., "Not for men only," Woman's Day, March 8, 1977.

79. Shephard, R., Physical Activity and Aging, p. 176, Chicago: Yearbook Medical Publisher, 1978.

80. Shephard, R., Endurance Fitness, Toronto, Canada: University of Toronto Press, 1977.

81. Shock, N., "Physiologic concepts of aging," J. Amer. Dietetic Association, 56:491-496, 1970.

82. Shock, N., "The physiology of aging," Scientific American, 206: 101-110, 1962.

84. Simonson, E., Kearns, W., and Enzer, N., "Effect of methyltestosterone treatment on muscular performance and the central nervous system of old men," J. Clin. Endocrinol., 4:528-534, 1944.

85. Simonson, K., Physiology of Work Capacity and Fatigue, p. 406, Springfield, Ill.: Charles C Thomas, 1971.

*86. Staley, S. (chairman), Exercise and Fitness (a collection of papers presented at the Colloquium on Exercise and Fitness, Robert Allerton Park, Monticello, Ill.), University of Illinois College of Physical Education and the Athletic Institute, 1960.

*87. Starr, I., "An essay on the strength of the heart and on the effect of aging upon it," Amer. J. Cardiology, 14:771-783, 1964.

*88. Stinfield, J., "Health conscious citizens are a national asset," J. Phys. Ed., March-April 1972.

89. Taylor, J., Manual of Respiratory Therapy, St. Louis: C. V. Mosby, 1978.

*90. Tichy, M., A Study of the Relationship of Participation in an Exercise Program to the Development of Cardiovascular Fitness, unpublished Master's thesis, University of Oregon, Portland, 1974.

*91. Timiras, P., Developmental Physiology and Aging, New York: Macmillan, 1972.

*92. Toohey, P. and Larson, C., Range of Motion Exercise, Key to Joint Mobility, Minneapolis, Minn.: Sister Kenny Institute, 1968.

*93. Troll, L., Early and Middle Adulthood, The Best Is Yet To Be, Monterey, Calif.: Brooks/Cole, 1975.

*94. U.S. Department of Health, Education and Welfare, Strike Back at Stroke, Public Health Service Publication #596, Washington, D.C., 1962.

*95. Vickery, F., Programming for Older Adults: A Leadership Guide, New York: Association Press, 1972.

*96. Williams, M. and Worthingham, C., Therapeutic Exercise, Philadelphia: W. B. Saunders, 1957.

*97. Wilmore, J., Athletic Training and Physical Fitness, Boston: Allyn and Bacon, 1977.

---

*Supplemental resources not referred to in the writing of this module.

APPENDIX

Additional Resources

1. National Association for Human Development
   1750 Pennsylvania Ave., N.W.
   Washington, D.C. 20066

   Support materials can be ordered from NAHD for use in exercise and activity programs for older persons.

2. Educational Record Sales
   157 Chambers Street
   New York, N.Y. 10007

   Records, filmstrips, transparencies, and books are available for purchase and may be used for physical exercise sessions.

3. Agency for Instructional Television
   Main Office
   Box A
   Bloomington, Ind. 47401

   Films and videocassette available for rent or purchase for use in physical exercise program planning or implementation.

4. Sunburst Communications
   Room 273
   41 Washington Avenue
   Pleasantville, N.Y. 10570

   "The Physiology of Exercise," filmstrip.
   "Your Exercise Program," filmstrip.

   Basic, sound information, excellent presentation, interesting.

5. Ramsgate Films
   704 Santa Monica Boulevard
   Santa Monica, Calif. 90401 (213) 394-8819

   "Run, Don't Walk," 17 min. color film, 1977.

   Graphically demonstrates the benefits of physical fitness for adults. Men and women, ranging in age from 40-80 years, enthusiastically describes the mental and physical benefits they derive from swimming, jogging, paddle tennis, and gymnastics.

6. Encyclopedia Britannica Educational Corporation
   425 N. Michigan Ave.
   Chicago, Ill. 60611

   "Exercise and Physical Fitness," 16 mm color, 17 min. film.

   Examines the nature of physical fitness and discusses how exercise can contribute to a state of general good health.

7. Phonotape
   Sandoz Pharmaceuticals
   East Hanover, N.J.

   "Diagnosis Aging . . . Prescription: Activity."

   A panel discussion on helping the aged patient remain physically and socially active.

8. McGraw-Hill Films
   Crm Productions, 1973

   "Aging."

   Discusses two major theories on the aged, the activity theory, and the disengagement theory.

9. Brigham Young University
   Audio-Visual Services
   Provo, Utah

   "Run Dick, Run Jane," 16 mm, 20 min. film.

   Illustrates through laboratory statistics and case studies, the benefits of a personal fitness program, includes views of Larry Lewis, a 104 year old runner and Peter Strudwick, who jogs with no feet.

10. Miss. Authority for Education Television
    Public Television Library
    475 L'Enfant Plaza, S.W.
    Washington, D.C. 20024

    "Food and Exercise for Older Adults," Living Better Series, 2 inch videotape, 14 min. color, produced by Maetel Dist. Pub. Tel.

11. Adults Health and Developmental Program
    University of Maryland
    College Park, Md. 20740

    "Smiles: The Adults Health and Developmental Program," 16 mm, 30 min. film, 1977.

12. Health, Fitness and Leisure for a Quality Life. AAHPERD's fourth public information film promotes lifelong activity and shows the various settings in which health, physical education, dance, and recreation personnel serve in programs for older adults. It is aimed at motivating decision-makers to incorporate health, fitness, and leisure services into programs designed for adults, particularly the elderly. 1979. 16 mm, 20 min., color, sound. Purchase, $350.00 (240-26478); rental (applicable to purchase price), $18 (240-26476). Order from AAHPERD, c/o NEA Sound Studios, [illegible]900 Association Drive, Reston, Va., 22091.

INNOVATIVE ACTIVITY SUGGESTIONS FOR OLDER PERSONS

(Submitted by Dr. Michael W. Tichy, Professor, Portland State University, and consultant to the President's Council on Physical Fitness and Sports.)

1. BALL EXERCISES

   1. Bounce and Catch
   2. Passing and Catching
   3. Hand Dribbling
   4. Soccer Dribble Drills
   5. Newcombe
   6. Circle Keep Up
   7. Volleyball Lead Ups
   8. Medicine Ball Activities
   9. Pushball
   10. Gymnastic Ball Drills
   11. Relays
   12. Bowling-Type Activities

2. BAR EXERCISES (Stationary and Loose)

   1. Stretching and Turning
   2. Companion Stunts (rowing)
   3. Weight Lifting Type Activities
   4. Hanging (horizontal bar)
   5. Stretching
   6. Rowing Activities Alone
   7. Pull-ups from Lying Position (held by two partners)

3. BARBELL EXERCISES

   1. Light, Wood Barbells
   2. Weight Lifting Activities
   3. Arm Movements Separately
   4. Leg Movements Separately
   5. Combinations
   6. Stretching Positions

4. BEANBAG EXERCISES

   1. Toss and Catch
   2. Passing and Handling
   3. Toss at Targets (both vertical and horizontal)
   4. Balancing Activities
   5. Stoop and Stretch
   6. Hand Rotation Activities
   7. Finger Manipulation Exercises
   8. Bowling Like Tosses at Targets, for Distance

5. CALISTHENIC EXERCISES

1. Individual
2. Dual
3. Small Group
4. Large Group

6. CARRYING EXERCISES

1. Carrying and Balancing Objects
2. Flap Jack Relay
3. Spoon Carry
4. Shopping Bag
5. Buckets
6. Carrying Logs (hollow rug tubes) in a Group Situation

7. CHAIR EXERCISES

1. Musical Chairs
2. Assuming Various Positions
3. Chair Calisthenics
4. Rocking Chairs
5. Action Stories
6. Rhythms
7. Foot Writing
8. Passing the Ring
9. Parachute Activities
10. Proper Methods of Getting Up and Sitting Down

8. COMPANION EXERCISES

1. Performer and Assistant
2. Sitting on Floor and Rowing
3. Bent Knee Situps
4. Range of Motion
5. Passive Exercises
6. Mirror Mimetics
7. Partner Exercises

9. CLUB EXERCISES

1. Indian Club Drills
2. All Up Relay
3. Pendulum Motions
4. Large Circles
5. Small Circles
6. Block Bowling
7. Push Relay
8. Smittles
9. Log Rolling (use large rug tubes)

10. DRAMATIC EXERCISES

1. Dramatic Gesturing
2. Pantomimic Postures
3. Story Plays
4. Body Movements Pantomiming Home Chores
5. Make-Believe Sports Activities
6. Swimming Strokes

11. ELASTIC EXERCISES

1. Elastic Exerciser
2. Arms Above Head
3. Pull Across Chest
4. Leg Extension (bicycle innertube)
5. Single Arm Flexing (alternate)
6. Alternate Pulls with Partner

12. EDUCATIONAL EXERCISES

1. Simple to Complex Sequences (arms and legs)
2. Arm Exercises
3. Leg Exercises
4. Combination Exercises (jumping jacks, etc.)
5. Simon Says
6. Man-Gun-Rabbit
7. Stone-Paper-Scissors
8. Patterning in Walking

13. EXPRESSION EXERCISES

1. Facial and Body Expressions
2. Mood and Movements--Walking, Lazy, etc.
3. A Visit to My Friend
4. Mime
5. Posturing Depicting Emotions

14. FLAG EXERCISES

1. Small Flag Exercises
2. Arm Circling (individually--in unison with group)
3. Flag Waving to a Rhythmic Cadence
4. Pattern Drills
5. Semaphore Drills (communicating positive messages)
6. Passing Flags (circle formation--line formation)

15. FIELD EXERCISES

1. Cross-Country Activities
2. Bird-Watching Activities
3. Walking Through High Grass (high stepping)
4. Make-Believe Stonestepping (balance exercises)

15. FIELD EXERCISES (Continued)

5. Following Footprints
6. Cross-Country Skiing (make believe)

16. HOOP EXERCISES

1. Hula Hoop
2. Arm Movements (circles, stepping through)
3. Propelling Hoop with Hands
4. Tossing and Spinning Hoop (forward and reverse turns)
5. Balancing Hoop on Hands
6. Metal Hoops with Wire Guide--Cross-Country
7. Hoop in Fixed Position, Executing Trunk and Leg Movements
8. Wheel and Broom Handle Agility Activities
9. Balance Drills

17. LOCOMOTOR EXERCISES

1. Walking Programs
2. Heel-Toe Relay
3. Tag the Wall Relay
4. Walk-Jog Combinations
5. Galloping
6. Skipping
7. Side Stepping
8. Heel-Toe Walking
9. Partner Combinations

18. LOG EXERCISES

1. Rug Tubes (small 2" diameters and 8" diameters)
2. Rolling Logs from Sitting Position
3. Arm Exercises (team activities)
4. Chair Exercises with Tube
5. Log Pushing with Broom Handle
6. Arm Exercises--Above Head
7. Arm Swinging While Walking

19. MARCHING EXERCISES

1. Facing Movements
2. Stepping in Place
3. Line or Column Formation
4. Arm Movements While Marching
5. Marching to Music
6. Special Drills
7. Follow the Leader
8. Cross-Country

20. MEDICINE BALL EXERCISES

1. Circle Formation (passing ball around)
2. Double Lines (passing and rolling across to each other)
3. Working in Pairs
4. Sit on Chair and Push Ball Across to Partner
5. Have Group Sit on Floor in Circle Formation Move Ball Around with Hands and Raise Legs as Ball Comes Around
6. Tunnel Relay

21. MIMETIC EXERCISES

1. Group in Open Formation
2. Imitating Human Activities, e.g., Washing Clothes, Sweeping the Floor, Baking Bread, etc.
3. Animal Activities, e.g., Flying Like a Bird, Walking Like an Elephant, Stork Stand (one leg)
4. Machine Movements, e.g., Steam Engine, Rocking Chair, Airplane, etc.
5. Automobile Relay
6. Combination Arm Movement and Locomotion

22. NATURAL EXERCISES

1. Human Work Activities (chopping wood, cutting hay, fishing)
2. Lifting and Carrying Stones
3. Throwing a Lariat
4. Picking and Carrying Fruit
5. Husking Corn

23. OBSTACLE EXERCISES

1. Walking Around Obstacles
2. Stepping Over Make-Believe Objects
3. Walking in Make-Believe Water
4. Sliding as if on Ice
5. Walking on Hot Sand
6. Agility Walk (based on Illinois agility run)
7. Running Mazes

24. POLE EXERCISES

1. Pole is 6 to 8 Feet Long, 2 Inches in Diameter (paper tube)
2. Combination Movements in Cadence
3. Raising Pole Above Head with Partner
4. Light Pulling and Pushing Movements
5. Rhythm Movements
6. Partner Drills

25. PULLEY WEIGHT EXERCISES

1. Standard Pulley Weight Machine
2. Arm Movements (do not hold breath)
3. Leg Pulley Movements
4. Reeling as if Fishing

26. QUICK REACTION EXERCISES

1. Open Formation
2. Assume Various Body Positions (such as arms overhead, b. ng right knee up, etc.)
3. Respond Only to Instruction
4. Simon Says
5. Numbers Change
6. Dual Colors
7. Ocean Is Stormy

27. RHYTHM EXERCISES

1. Leg Exercises (hopping, bouncing, marching)
2. Trunk Exercises (weaving side to side)
3. Arm Swinging to Music
4. Rhythm Calling
5. Square Dancing
6. Circle Dancing
7. Marching
8. Hand Clapping Exercises

28. RING EXERCISES

1. Rope and Rings
2. String and Finger Ring
3. Ring Toss Activities
4. Combination Movements
5. Hold the Turkey (ring)

29. ROPE EXERCISES

1. Short Rope (3 feet long) Arm Exercises
2. Tying and Untying Knots
3. Holding Rope in Fixed Position
4. Combination Arm and Leg Exercises
5. Long Rope (6 feet to 8 feet long) Jumping
6. Arm Pulling Exercises with Partner
7. Rope Skipping Drills

30. RUNNING EXERCISES

1. Running at Different Paces
2. Running in Place
3. Combination of Jog-Walk

30. RUNNING EXERCISES (Continued)

4. Boy Scout Conditioning Program
5. Running on Different Surfaces (make-believe)

31. STALL BAR EXERCISES

1. Stall Bar and Bench
2. Holding Bar and Balancing on One Foot
3. Walking Hands Up and Down Bars
4. Reach as High up the Bars as Possible
5. Bent Leg Situps (toes hooked under bar)
6. Side Bending Exercises
7. Stretching Drills

32. STRETCHING EXERCISES

1. Stretching from Sitting Position
2. Stand and Stretch
3. Mad Cat
4. Lateral Stretching
5. Twist and Stretch
6. Static and Ballistic Stretching
7. Various Positions

33. WAND EXERCISES

1. Wooden Dowel (about 40 inches long)
2. Exercise to Given Cadence
3. Two-Hand Raise Above Head--Twist Right, Twist Left
4. Extend Both Hands in Front of Body, Rotate Right Hand Down, Left Hand Up (perpendicular, return to starting position)

MODULE 7: HEALTH EDUCATION

INTRODUCTION

The process of aging is the underlying theme of this module. If the HPERD practitioner has an accurate understanding of the developmental concepts of aging, this should facilitate the establishment of a curriculum that uses preventive, interventive, and postventive health care tactics. True, many students will visualize an "aging" course in health education as one that stresses diabetes, arthritis, and degeneration, not to mention disabilities and death. For many students, developmental aspects of "getting older" become relevant only when they start finding gray hairs on their heads. Even then, the number of gray hairs serve as the "getting old" gauge.

My experience with this course has led me to believe that if a student is not future oriented, the information presented is often perceived as irrelevant ("It's too early for me to consider that"). Thus upon leaving the classroom, the student is often prone to disregard the interventive and preventive suggestions. Also, it is not uncommon for some students to drop a course such as this because they are threatened by the subject matter. Death is not necessarily the precipitating factor which undermines their interest. The culprit is often fear of physical change (loss of youthful appearances) due to degenerative processes. This is not to say that gerophobia is pandemic, but rather that it may be present in degrees in your classroom.

Health education classes often focus on the aging body. Thus this particular module emphasizes biological and physiological aging and

touches briefly upon various psycho-social aspects. Another reason for our emphasis is that many colleges and universities deal with the psycho-social realm of aging under various disciplines (sociology, human development, family studies, psychology).

The role of health educator is seen as an integrative one, stressing the health sciences within the context of interventive, preventive, and postventive health practices. The ultimate goal always is improvement or maintenance of health and well-being.

This module will focus on the following major themes:

1. Integration of the physiological, psychological, and sociological components may lead to a better understanding of the complexities of the aging process.

2. Aging begins at the cellular level. A complete theory of aging must consider this functional unit, the cell.

3. Physiological age changes can be deterred by preventive and interventive health practices. Postventive measures may help to maintain or restore functioning capacity in the older adult.

4. There are choices one can make to deter early onset of pathologies associated with an aging body. These choices will be presented and discussed whenever appropriate.

By and large, the learning activities are designed to help the reader to translate each concept into HPERD program development.

OBJECTIVES OF THE MODULE:

Once you have finished reading this module, the HPERD professional should be able to:

1. Explain physiological, psychological, and sociological processes of aging from a health education perspective.

2. Suggest preventive, interventive, and postventive factors which will enhance the aging process.

3. Explore positive aspects of aging.

I. Integration of the physiological, psychological, and sociological components may lead to a better understanding of the complexities of the aging process.

Concept I: We are all aging individuals.

A. Stereotyping of the older individual is not difficult to establish. The gerontological literature is filled with countless examples of such misconceptions. The media, especially television, perpetuates myths of old age through the characterization of older adults (1, 2, 3) as well as through literature, drama, and poetry.

B. Aging is a process, not a state. Shakespeare described the seven ages of man in As You Like It (act 2, scene 5) with a great deal of foresight. Although various classifications of old age have been developed to facilitate differentiating stages of growing old, the following appears to be most useful (58):

1. Middle age is the second half of a person's working career (e.g., ages 40-65 years).

2. Old age is the immediate post-retirement period, when there is usually no gross impairment of function or homeostasis (e.g., ages 65-75 years, sometimes described as young old age).

3. Very old age is a stage when there is usually some functional impairment but the individual can still live a relatively independent life (e.g., ages 75-85 years, sometimes described as middle old age).

4. Extreme old age is a stage where institutional and/or nursing care is usually needed (e.g., ages 85 years and over, sometimes described as old, old age).

LEARNING ACTIVITY:

Objectives: To examine the degree of future orientation of the students in your classroom.

To sensitize the students to their vulnerability to pathologies.

To introduce the concepts of "making appropriate decisions that will preclude healthful aging."

1. Distribute a life expectancy test (67).

2. Have the students fill the test out at home. Once they have calculated their approximate life expectancy, have them tabulate their projections about how they will age in the physical, psychological, and social areas.

3. If they report their projections using each decade as a unit, starting with the most relevant decade, their charts should be easily organized.

4. Specific points to cover under each area may be as follows:

Physical	Psychological	Social
appearance	crises	marriage
weight	losses	family
activity level	sexuality	children
hobbies	depression	church
	occupation	organizations
		income

5. When students have completed the assignment, divide the class into small groups. Have each group chose a recorder to take notes. Let each member of the group share their respective projections. The recorders will summarize the group's dialogue. Once all groups have finished their dialogues (about 30 minutes per group of six), let each recorder report to the class. Dialogue may follow with each report.

II. Aging begins at the cellular level. A complete theory of aging must consider this functional unit, the cell.

Concept I: Theories on aging may exemplify how various scientists define the aging process.

A. Some theories are more widely accepted than others. One such theory is the crosslinking theory (see the physiology of aging module). The formation of crosslinking agents can be reduced by adding antioxidants to the diet in proper amounts and under the appropriate conditions.

B. All polyvalent metal ions are potential crosslinking agents (8). Unnecessary exposure to aluminum compounds, found in antacids, coagulants, and baking powders, has been advocated (aluminum content increases, with age, in the brain).

C. Oxidation of unsaturated fats is another controllable source of crosslinking. The formation of crosslinking agents can be minimized by the use of an antioxidant. Vitamin E and selenium are the most thoroughly known (8).

D. Reducing or omitting the intake of unsaturated fats is another means of minimizing the formation of crosslinking agents. Bjorksten summarizes the alternatives as follows (10, p. 73):

> Since saturated fats are contraindicated in circulatory disease, alternatives would be to cut out virtually all fat, except a moderate amount of linoleic acid and lecithin, and to use carbohydrates as the principal energy source in the diet, or to use unsaturated fats with concurrent administration of vitamin E and lecithin in adequate dosages.

Refer to Bjorksten (10), discussion on toxicity and suggested dosage of vitamin E.

E. Harman's free-radical theory (29, 30) has been supported by others (27). Agents of the free-radical theory are also agents implicated in the crosslinking theory.

F. Other theories, such as the autoimmune theory (12), the mutation theory (6, 13), the collagen theory, and the biological clock theory (14), are also of interest and importance. The effects of radiation upon the body (6, 8, 12, 13) and the results of hormonal imbalances (14) are implicated.

G. Radiation effects, implicated in both the crosslinking, autoimmune, and mutation theories may be discussed in a practical manner. For example, the long ultraviolet rays of the sun are responsible for sunburns. Wearing sunscreen containing para-aminobenzoic acid (PABA) is reportedly most effective for skin care. The damage done by sunburn, peeling, and, finally, skin healing is irreversible and cumulative. PABA (5 percent) will block out the long rays but still allow tanning via the short rays of the sun. Sun rays are most dangerous between the hours of 10 a.m. and 2 p.m. standard time and 11 a.m. and 3 p.m. daylight savings time.

H. An excellent overview of various theories of aging can be found in Weg's Nutrition and the Later Years (63).

LEARNING ACTIVITY:

Objective: To synthesize the theory presented and apply suggestions made by theorists.

1. Discuss the differences between in vivo and in vitro studies if you present data that could be challenged due to experimental procedures.

2. Discuss the role of vitamin E (36) as an antioxidant.

3. Describe lecithin and its source (36).

4. Discuss where commonly ingested metals implicated in cross-linking and free-radical reactions may be encountered in our daily routines (e.g., hard vs. soft water, air pollution, etc.).

5. Ask the students which of the theories seems most plausible. They should be able to defend their choices.

Concept II: An understanding of biological and physiological aging is crucial.

A. Aging is not expressed by individual cells but by cell lineages. Hayflick (32) examined in vitro the process of aging at the cellular level using human fibroblasts. These cells demonstrated characteristics of being innately programed to stop dividing at a fixed doubling, approximately (50±10). Recent studies on cultural fibroblasts obtained from human skin biopsies suggested that the number of population doublings undergone by normal human fibroblasts in culture is inversely proportional to the age of the donor (32). For a more detailed discussion, please refer to the physiology of aging module.

B. Age changes in cell organelles, tissues, and systems should be presented with enough detail so that students may delineate, to the best of their ability, the normal processes of aging versus the

pathological. The Spenco slide programs are recommended only as an audiovisual aid in describing body organs or as a means of clearly defining pathologies of the human body.

C. Preventive, interventive, and postventive measures may be discussed in conjunction with each unit of the physiology of aging. The health educator's role should be to provide "action suggestions" to ameliorate or influence the health or lifestyle of the student via accurate and appropriate information. Ultimately, the students make the choice, but at least you have presented the facts.

D. Areas of prevention (via education), intervention (action now), and postvention (rehabilitation or change of routine) may include:

1. Diet (effects of poor nutrition on dentition, weight control, mental health, and overall body response).

2. Exercises (i.e., role of exercise not only in cardiovascular disease, but also in diabetes and stress and tension release).

3. Environment (e.g., noise level, air pollution, sunlight, and drug exposure).

E. Non-science students may become anxious by detailed, sophisticated presentations of body systems. Their focus should be upon the health aspects of daily living so as to promote a healthy life. If your students are required to learn the anatomy and physiology of each system, perhaps you should re-examine your goals of this particular section.

LEARNING ACTIVITY:

Objectives: To expose students to developmental processes of the aging body.

To expose students to the effects of negative habits upon the body.

To initiate change in the students' lifestyles (none of us is perfect!).

1. Use several overlays burned from xeroxed pictures from physiology or anatomy text to illustrate lecture descriptions.

2. Have the students log, for one week only, their daily habits (try not to choose midterm break, rush, homecoming, or midterm exam weeks). Habits may include leisure activity, diet, hobby, exercise, church, community-related activities, interaction with peers, etc. The purpose of this activity is to put into perspective how unhealthy habits may be perpetuated later in life. The students may evaluate their own logs and answer the questions:

a. What are your worst habits and why?

b. What are your best habits?

c. Do you like your lifestyle (given the constraints of student life)?

d. What would you consider changing?

e. What will you change?

Perhaps this exercise will give students a chance to prioritize their health beliefs and behaviors.

III. Physiological age changes can be <u>deterred</u> by preventive and interventive health practices. Postventive measures may help to maintain or restore functioning capacities to the older adult.

Concept I: Disorders, diseases, and limitations of the middle-aged and older adult may be due to poor health habits.

A. Obesity, gallbladder diseases, and anemia often become apparent in middle age and are then carried over into old age (64). These disorders, if not corrected or curtailed, may interact or lead to other disorders such as diabetes mellitus, arteriosclerosis, varicose veins, hernia, osteoarthritis, cardiovascular disease, peptic ulcer, and hypertension. A person who is overweight when entering the hospital for health care has a higher risk for respiratory difficulties, heightened frequency of thromboembolism, infection, and nervous breakdown from surgery (64).

B. Some frequent age-related disorders:

1. Arthritis.

a. Arthritis affects approximately 14 percent of men and 23 percent of women over 45 and is the second highest cause of limited activity for an individual. Osteoarthritis is the most common form of arthritis for those aged 50 and over and affects mostly the weight-bearing joints (knees, hips, and spine). Rheumatoid arthritis is the most destructive and disabling form of arthritis. Unlike osteoarthritis, it may spread through the body by causing disease in the lungs, muscles, heart, eyes, spleen, and blood vessels. Rheumatoid arthritis is caused by infection, whereas osteoarthritis is attributed to the "wear and tear" that occurs in the joints of older adults.

b. Warning signs of arthritis are (4):

i. Persistent pain and stiffness upon rising.

ii. Pain or tenderness in one or more joints.

iii. Swelling in one or more joints.

iv. Recurrence of these symptoms.

v. Pain and stiffness in the neck, lower back, knees, and other joints.

vi. Tingling sensations in fingertips, hands, and feet.

vii. Unexpected weight loss, fever, and weakness.

c. There are five major forms of arthritis. Osteoarthritis and rheumatoid arthritis, the most common, have been discussed. The others include gout, rheumatic fever, and ankylosing spindylitis.

d. Treatment for these conditions includes rest, exercise, intake of iron and vitamins, spas, hormones, linaments and ointments, drugs, and local applications of heat (17). Drugs prescribed are usually divided into three categories: anti-inflammatory, anti-infection, and analgesic.

2. Diabetes.

a. Presently, diabetes is the third leading cause of death in the United States. About 75 percent of all cases occur in persons over 50.

b. Diabetes mellitus is a chronic disorder of carbohydrate metabolism resulting from a deficiency of insulin (secreted by the pancreas). It is characterized by increased blood sugar content (hyperglycemia) and the presence of sugar (glucose) in the urine (glycosuria). A disturbance of fat and protein metabolism also exists. Diabetes insipidus is caused by an inadequate secretion of vasopressin. Vasopressin is an antidiuretic hormone secreted via the pituitary gland.

c. The normal level of glucose usually does not exceed 160 mg sugar per 100 mg blood. In diabetics, this level rises above 200 mg per 100 mg blood.

d. One may be predisposed to diabetes. That is, diabetes may lie dormant only to emerge in clinical form at a certain point in the individual's life. Obesity, infections, trauma, and emotional stress are other contributing factors.

e. Complications of diabetes mellitus may include the following: retinal lesions or cataracts (retinopathy appears to be significantly influenced by both the duration and degree of diabetic control) (37), gangrene, atherosclerosis, hypertension, cerebral vascular disease, osteoporosis, gout, and impotency.

f. No cure is known for diabetes, but it can be controlled by diet alone, oral medication, or insulin.

g. Can a diabetic exercise? Exercise by diabetics has been most effective in reducing insulin requirements (8).

3. Hypertension, heart disease, and stroke.

a. Coronary risk factors have been identified by several investigators. Out of nine factors, four can be controlled, two can be treated by a physician, and the remaining three are left to mother nature's discretion.

b. Four controllable factors are prevention of obesity, smoking, inadequate exercise, and too much emotional stress. Two treatable factors are hypertension and high cholesterol. The three factors beyond control are susceptibility due to age, family history, and diabetes mellitus (22, 24).

c. The implications for interventive, preventive, and postventive suggestions may be discussed in light of diet, exercise, work habits, relaxation techniques, etc.

d. Hypertension is found in children and is common in middle-aged and young adults. In younger age groups, hypertension is more common in men. Women surpass men most markedly after menopause. In older people, women have a higher incidence of high blood pressure than men--28.3 percent versus 26.7 percent after the age of 75. Ninety-five percent of all hypertension is "essential" or "primary," since it doesn't stem from a known cause. The other 5 percent of the population may have "secondary" hypertension, because it is a side reaction to a known abnormality. When the abnormality is cured, blood pressure returns to normal (22).

> The level of capacity available at 70 and 80 is a consequence of all that has gone before--one's heredity, the interaction with human and physical environments, nutrition, exercise, intellectual and affective pursuits--in the total life style to date. (63, p. 250)

e. Continued use of one's body and vigorous exercise can prolong physical capacities and reduce the risk of cardiovascular disease (63).

f. Modifying one's diet by reducing overall caloric intake, decreasing fat and cholesterol intake, and limiting one's desire for sugar may also diminish the risk of coronary heart disease. Increased intake of minerals and vitamins has been effective in combating osteoporosis and "senility" (<u>acute</u> senile dementia) (63).

g. To cut down or quit smoking could reverse the excess morbidity and mortality related to lung and oral cancer, pulmonary

diseases, and cardiovascular disease. A twofold increase in the overall death rate of smokers to non-smokers presently exists and is at its peak from ages 45 to 55 (63).

h. The pace of American life--high achievement oriented, compulsive, and constantly pressured by deadlines--does not lend itself to a stress-free environment. The effects of stress upon the body are numerous, and so it is important to relieve tension through exercise or relaxation techniques in order to rid the body of negative pent-up emotion.

LEARNING ACTIVITIES:

Objective: To enhance the students' understanding of disorders associated with aging.

1. Invite guest speakers from local foundations or chapters to discuss interventive and preventive measures regarding arthritis, diabetes, heart disease, cancer, etc.

2. If possible, obtain slides demonstrating structural changes relevant to your lecture. Slides may be obtained from various local chapters or a nearby medical school.

3. Often the American Cancer Association and the Heart Association have "games" which may be used to help students determine their vulnerability to such diseases.

Concept II: Special nutritional needs of the older adult and how they differ from the needs of others.

A. Being overweight, rather than underfed, is believed to be the greatest problem among older persons. Obesity, although related

in the beginning to genetic individuality, develops later in life as a result of caloric intake being greater than caloric expenditure (63). Contrary to earlier beliefs, the number of adipose cells in adult-onset obesity is not fixed and may increase (52).

B. Obese persons are predisposed to a number of afflictions. Among these are diabetes mellitus, arthritis, heart disease, gout, hypertension, kidney disease, hypercholesteremia, hernia, thyroid disease, colitis, peptic ulcer, and cancer (60).

C. The contribution of refined carbohydrates to morbidity and mortality among older persons is well defined. For example, sucrose:

1. Increases the level of serum cholesterol, thereby adding to the vulnerability to cardiovascular attack.

2. Exhausts the pancreas, leading to maturity-onset diabetes in a percentage of older persons.

3. Contributes to the metabolic patterns for obesity (63). Some researchers have suggested adiposity, and not caloric sources, as the culprit responsible for the prevalence of maturity-onset diabetes.

D. Modified eating patterns (e.g., smaller meals more frequently as opposed to two or three large meals) have been shown to make significant differences in intermediary metabolism and eventual body composition (63).

E. Undernutrition and malnutrition are legitimate concerns for older adults. Government and private surveys in the United States have revealed high frequencies of low calcium, iron, and ascorbic acid intake as well as a lack of essential trace elements and bulk from vegetables. Although few older persons exhibit primary or frank

malnutrition (e.g., as evidenced by scurvy, beri-beri, etc.), milder symptoms such as loss of appetite, general malaise, listlessness, insomnia, headache, and irritability are often exhibited. Often these symptoms are considered signs of aging or the result of non-nutritional causes (63).

F. Living conditions of many older adults as well as environmental factors may contribute to an inadequate diet. Some of these are (63):

1. Poor dentition (leading to the elimination of salads and meats).

2. Inability or reluctance to shop for a variety of foods (e.g., due to transportation, income, and physical disabilities).

3. Death or divorce of a partner (leading to loss of motivation to cook a balanced meal and the overuse of sugar-rich foods and beverages).

4. Institutional and/or restaurant cooking (providing meals with significant loss of heat-labile vitamins).

5. Stresses of living.

G. For a review of functional changes of the digestive system, refer to the physiology module on aging and to Weg (63). (Note that Weg's writing style does not lend itself to clear and straightforward sentences, but the organization of the materials and literature search are excellent.)

H. The role of nutrition with respect to atherosclerosis, cardiovascular disease, cancer, diverticulosis, diabetes, anemia, and osteoporosis has been discussed and well documented by Weg (63).

I. Behavioral changes in the older adult have been attributed to significant changes in the physiology of the person. Data suggest that a decline in taste and smell receptors, especially after age 60, leads to a progressive elevation in taste threshold. Although the health behavior of older adults is not easily summarized, Weg cites "some persuasive notions" that appear in the literature (63):

1. Older persons tend to increase carbohydrate intake, with a significant increase of refined sugars at the expense of more nutritious carbohydrates. (Carbohydrates are easier to chew, more palatable, and cost less than proteins, fats, or fruits.)

2. Generally, the research indicates that malnutrition among older persons exists in different forms: overt (diagnosed from subclinical biochemical tests) and marginal (observed during or after a period of stress).

3. A high proportion of subjects eat a diet deficient in one or more nutrients.

4. Calcium and iron are the deficient minerals most frequently noted. Vitamins C and B-complex are most frequently found to be low or deficient in amount.

5. Diets of homemakers who were 55 to 74 years old were more adequate than those of older women.

6. Although large numbers of older persons in studies examined know about balanced diets, knowledge of basic food sources and functions is limited. Dietary practices were frequently not related to dietary knowledge.

7. Most older persons walk to the store and shop at a particular store because of proximity.

8. Social isolation, especially for the poor, older adult, contributes to the lack of interest in foods and to dietary inadequacy.

J. This section on nutrition was written to distinguish specifically those factors relative to the older adult from those other factors related to the general public. If your desire as a teacher is to expound upon the "basic-four," etc., Guthrie (28) and Kirschmann (36) are recommended references. However, many older adults have heard "basic-four" lectures ad nauseum.

K. The general public is constantly exposed to a variety of diets, with the Pritikin diet and Atkins diet among the most popular. A recent diet specifically directed to aging has been Dr. Franks' "No Aging Diet" (23). Keeping up with what is being recommended to the general public is an important task of any educator, so read magazines that promote diets for older adults.

See the appendix to this module for sample lesson materials.

LEARNING ACTIVITY:

Objective: To give students the opportunity to log their nutritional intake and calculate their caloric expenditure.

1. Distribute a log sheet to your students. The sheet shown in the appendix is a suggested example (54).

2. Once students have logged their assignments, review the logs thoroughly and consider making a private appointment with those students who may need nutritional counseling.

3. Use movies whenever applicable. Discuss the movies in light of developmental processes.

IV. Psychological aspects of aging--A healthy mind living in an aging body.

Concept I: Senility is a misunderstood word, which even physicians are too eager to use. Misdiagnosis of outward symptoms indicative of senile tendencies is not uncommon (3, 7).

A. Simply stated, senility may be defined as the deterioration of the mind and "normal" behavior functions as a result of physiological, psychological, and sociological changes.

B. The major causes or factors associated with senility may be divided into three categories: biological, psychological, and sociological. Some biological factors include brain diseases or disorders such as senile dementia, cerebral arteriosclerosis, Alzheimer's disease, and Peck's disease. Psychological factors include stress, hypertension, fear, depression, and apathy. Sociological factors include non-activity or decreased community or family involvement, isolation, and loss of spouse. Other factors include alcoholism, malnutrition, tumors, trauma, viruses, and drugs.

C. Alcoholism is common in the elderly, and one-third of older patients considered for commitment to state psychiatric hospitals have a background of excessive drinking (41). Malnutritional states reflect simultaneous deficiencies of three or four important vitamins (vitamin A, ascorbic acid, riboflavin, and thiamine) (41). Errors by the elderly in the self-administration of medications are common and

often lead to senile dementia (40). Diuretics may lead to dehydration and mental confusion, and CNS drugs (i.e., phenothiazines, barbiturates, etc.) may cause confusion, disorientation, or wandering.

D. Results of the above factors include short-term memory loss, a reduction in the rate of new learning, an inability to do routine tasks, strong emotional outbursts, unusual behavior, confusion, and death.

E. Treatment for chronic disorders include institutionalization, psychotrophic drugs, activity (mobilization), and "tender loving care." The elderly with acute disorders may receive dietary treatment, medication, rehabilitation, psychiatric care, and activity (stimulation) (65).

F. Recent research has concluded that senility is becoming one of the worst public health problems in the United States (34) and that choline or lecithin treatments have been cited as major breakthroughs in the search for a cure (34).

G. In summary:

> One way to ensure "senility" is to misdiagnose a case of reversible cognitive disorders and consequently treat the patient as a case of chronic organic brain syndrome. The medications and the milieu experienced by patients with the diagnosis of chronic organic brain syndrome will certainly combine to fulfill the prophecy. The clinical rule is to seek out and diagnose the pseudosenilities with the expectation that effective therapy will follow. (41, p. 87)

Other concepts dealing with memory, learning, and psychomotor skills are covered in the psychology of aging module. Please refer to the appropriate sections for further guidance.

Some suggestions may be included here regarding "older students" in the classroom (50):

1. If older adults are attending your class, you are advised to distribute to them class outlines with adequate spacing between sentences.

2. Allow the older students as much time as they need to write exams.

3. Most older adults are better at recognition questions (i.e., multiple choice) than recall questions (i.e., essay or short answer). In order to give the older student an appropriate exam, you may wish to consider these suggestions.

4. Older students do not react readily to questions posed to them. Allow time for processing.

Concept II: Sociological aspects of aging may include as many relevant issues as one chooses. This unit will focus briefly on retirement, economics, crime, the battered elderly, stress and tension, death and dying, and sexuality.

A. Retirement.

1. The definition of retirement depends upon who is using it. It may describe an event, a crisis period, or a stage of life.

2. Adjustment to retirement depends upon one's personality expressed throughout life (49). Five personality types are defined, out of which two groups were formed: those who adjusted relatively well and those who adjusted rather poorly. The "well-adjusted" group included:

a. The "mature" men, who have been realistic about and accepting of their limitations and potentialities.

b. The "rocking chair" men, who have been passive throughout their lives and welcomed retirement as freedom from responsibilities.

c. The "armored" men, who have maintained a well-devloped defense system against anxieties. They have worked off anxieties through intense physical activity and involvement with life.

The following personality types represent "poorly adjusted" retirees:

d. The "angry" men, who are bitter at having failed to achieve their personal goals in earlier life. They blame others for their predicament and are angry about becoming old.

e. The "self-haters," who express disappointments, as do the angry men, but blame themselves instead of others. Growing old emphasizes their feelings of inadequacy and worthlessness. The prospect of aging depresses them.

3. Some aspects of adjustment to retirement.

a. Positive.

i. Freedom from a long-term career activity.

ii. Relief from stresses of a job.

iii. Opportunity to develop new interests and activities.

b. Negative.

i. Loss of routine.

ii. Reduction of income.

iii. Reduced challenge to one's psychological performance.

iv. Loss of status as a contributor to the economy.

v. Broken contacts with associates.

4. Factors which may cause poor adjustment to retirement:
    a. Reduced income (most prominent).
    b. Missing one's job.
    c. Declining health, or death of spouse, etc.
5. Factors contributing to a good adjustment:
    a. Sufficient income.
    b. Ability to gracefully give up one's job.
    c. Good health.
    d. Situational change at a minimum.
6. Activity theory, substitution theory, accommodation theory, and disengagement theory may all be applied to retirement topics (9).
7. Retirement income may be briefly discussed in this unit with options divided as follows:
    a. Government pension plans.
        i. Social Security.
        ii. Civil Service.
        iii. Military.
    b. Industrial pension.
        i. Participating.
        ii. Non-participating.
    c. Private pension.
        i. Individual retirement account (IRA).
        ii. Keough plan.
    d. Self-employment or part-time employment.

e. Other.

i. Savings.

ii. Investments.

iii. Insurance.

B. Economics.

1. Retirement brings a reduction in income for most older adults. The reduced income has a direct effect upon housing, medical care, transportation, groceries, clothing, etc.

2. The official 1970 poverty index states that over 25 percent of older couples and 40 percent of older adults living alone have incomes below poverty level (1, 15). Although in 1970, older adults in the United States comprised 10 percent of the population, they represented 20 percent of the poverty stricken (1).

3. The economic status of the elderly affects their health care. In 1973, persons 65 and older accounted for 28 percent of the $80 billion bill for personal health care (9). Personal health costs of older adults in the United States are between two and three times higher than the amount that might be expected on the basis of chance alone (older persons had an average annual medical bill of $1,052 as compared with a bill of $384 for persons aged 19 to 64, and $167 for persons under the age of 19) (9). The older individual insured under Medicare in 1973 could expect to have only 40 percent of the health bill paid by Medicare sources and could expect to pay $311 (on the average) from personal funds.

4. Health care providers, under the stress of increased demand, tend to change the character of the services they provide by offering less preventive and more acute care.

C. Crime and the elderly.

1. The elderly are the least likely age group to be victimized. However, they are more likely to be victims of predatory crime, where the intent is to obtain property, rather than violent crimes, where the intent is to injure. The economic, physical, social, and psychological consequences of criminal victimization are much more traumatic for the elderly than for younger age groups (39, 46).

2. Factors inherent in the aging process which increase the elderly's vulnerability to victimization:

a. Economic status: Approximately one-half of persons over age 65 are retired and living on fixed incomes.

b. Physical well-being: Conditions predisposed to an aged population make the elderly more vulnerable to crime. Furthermore, the general public is aware of these conditions, making the elderly easy targets for crime.

c. Environmental factors: Sixty percent of the elderly live in metropolitan areas, and most of these 60 percent live in the central city, where crime rates are high. The unemployed and teenage dropouts are the victimizers.

d. Social factors: The elderly are often isolated and live alone (16).

3. A significant psycho-social effect of victimization of the elderly is fearing crime. Women, blacks, persons of lower socio-economic levels, and persons who live in large cities tend to be most fearful of crime. A major consequence of fear of crime among the elderly is called "house arrest." According to Goldsmith and Tomas,

"House arrest is a form of self-imposed incarceration, where the terrorized remain behind locked doors refusing to venture out unless absolutely necessary" (25). House arrest can lead to isolation and loneliness.

4. Crime prevention in the forum of community programs designed to educate and train the elderly to reduce criminal victimization are both volunteer and self-help programs (12). Volunteer programs recognize the time, knowledge, and experience the elderly have, which make them effective in crime prevention. Self-help programs are community programs in which the elderly are actively involved in maintaining their own security.

D. The battered elderly.

1. Abuse of the elderly by adult children is only recently being documented in the literature. Fear of retaliation, shame, or fear of expulsion from the family are some of the reasons why the elderly refuse to report physical or psychological abuse. More cases of elderly abuse (60 years of age) actually exist than are reported. "Ohio Attorney General William J. Brown, who appointed a task force . . . to study domestic violence, said he believes victims of such abuse number in the tens of thousands" (42).

2. As more parents live into old age, a greater number of children will be required to care for their parents. A positive past relationship is not a necessary condition for an adult child to accept the caretaking role (11). Other reasons given for assuming the caretaking role include: reciprocating for past help, sense of personal satisfaction, filling an existing void in life, and avoidance of nursing home placement at all costs.

3. Characteristics of the abused elderly.

a. Elderly persons with some form of impairment may be more likely to be abused.

b. The battered elderly is similar to the battered wife syndrome in that the older person often remains in a known (secure) yet abusing situation rather than choosing an unknown (insecure) situation (21).

4. Characteristics of the abusers.

a. Adult children who abuse their parents were most likely abused as children (42).

b. Any definitive description of both the abuser and abused is dependent upon more research efforts (11).

5. The propositions below offer a systematic approach in accounting for the causes of family violence (53):

a. The causes of violence between family members are diverse, ranging from personality traits such as aggression and frustration due to role-blockage to internal and external conflicts.

b. The actual occurrence of elderly abuse is extremely high.

c. The stereotypes of family violence are reaffirmed continuously for adults and children through social interaction and the media.

d. Reinforcement for violent acts (i.e., if acts produce the desired results) increases the probability that violence will be used again.

e. Use of violence, when violence is contrary to family norms, creates a conflict in itself. This secondary conflict tends to produce further violence.

6. Some examples of more frequent types of abuse (11):

a. Physical abuse: bruises, welts, lack of personal care, lack of supervision, skull fractures, direct beating, tied to bed, tied to chair, and others.

b. Psychological abuse: threat, fear, verbal assault, and isolation.

c. Material abuse: shift or misuse of money or property.

7. Criminal prosecution requires evidence of abuse. An unsuccessful prosecution may endanger the victim further. Furthermore, the fundamental cause of the abusive behavior is not altered due to prosecution (21).

E. Stress and tension.

1. Stress may be defined as a non-specific response of the body to any demand on it (55). A stressor, then, is an agent that triggers stress (56, 13).

2. Stressors significant to the elderly are retirement. failing health, lack of mobility, financial difficulties, and social isolation. Social isolation is the greatest stressor. All other stressors serve to compound and increase the effects of isolation.

3. Some physical effects of stress include premature aging (cartisol released during stress accelerates the aging process) and an exacerbation of health problems.

4. Some coping techniques which may be effective:

a. Social engineering: minimize one's contact with stressors without affecting other things in life.

b. Cognitive reappraisal: Redefine, examine, and confront stressors.

c. Systematic relaxation techniques may be used to reduce mental and physical stress reactivity without hindering performance.

5. Types of systematic relaxation training:

a. Central relaxation techniques (relax the mind, and the body will follow) include meditation, hypnosis, and autohypnosis.

b. Peripheral relaxation techniques (relax specific points in the body, and then other systems, and the mind will follow) include biofeedback, progressive neuromuscular relaxation, and outgoing training (visualization and imagery are used here) (47).

6. Implications: Coping with stress may help the younger population begin earlier to learn to prevent the deleterious effect which stress has upon the body. The elderly may be able to reduce the pressures of old age by learning to deal effectively with stress (57).

F. Death and dying: The topics dealing with widowhood (5), life after death, euthanasia, appropriate death, healthy dying (35), and grief and bereavement may be drawn from in order to present a unit relevant to health education. See module 3 for guidance.

G. Sexuality.

1. Sexual activity for the sake of procreation no longer becomes relevant for the post-menopausal woman.

2. The taboos associated with human sexuality are especially directed to adults in old age. Although physiological age-related changes are responsible for some lack of interest (e.g., pain upon intercourse due to a lessening of lubrication for women), the libido is apt to continue functioning in the way it always has (48, 51).

3. Loss of sexual response in older males is attributed to the following five factors determined by Masters and Johnson (44, 45): monotony of a repetitious sexual relationship, preoccupation with career or economic pursuits, physical or mental fatigue, physical or mental infirmity of either spouse, or fear of failure associated with or resulting from any of the former categories.

4. Interest in sexual expression was well documented by the Duke Longitudinal Studies (1954-1978). The study reported that 80 percent of all males aged 60 and over were interested in sex and 70 percent of those interested were active. Only 33 percent of all females over age 60 were interested in sexual activity, and 20 percent of those interested were still active. The lower percentage of interest for women may reflect the lack of availability of a partner. Interviewing the same subjects ten years later, 80 percent of the males were still interested in sex, but only 25 percent were still functioning, whereas the figures for women remained unchanged. The second figures representing male interest could reflect the cultural double standard that expects men to be interested regardless of activity level.

5. Circumstances interfering with interest in sexual activity specific to the elder population are a depressive state due to medication, a diminished self-image and self-esteem due to an aging

body, and a lowered sex drive in the male. Situational and interpersonal relationship disturbances may be considered common to all age groups.

LEARNING ACTIVITIES:

Objective: To provide students with as much "hands-on" material as possible.

1. Invite speakers from other disciplines in your college to speak to the class (i.e., law enforcement, psychology, human development, family studies, ministry). Often the experiences had by people working in a particular area stir interest.

2. Obtain psychometric tests used in cognitive studies. Ask students to participate in problem-solving, memory, or other learning experiments. Discuss the relevance of such experiments.

3. Refer to modules 3 and 4 for further suggestions.

APPENDIX

HEALTH SCIENCE
Bio P.E. 431A

Dr. Sellers

For the next two weeks starting tomorrow, you are to record on the sheets provided for you, as accurately as possible, the foodstuff that you eat and record the Kcals. In order to determine the Kcals, you will have to use one of the many Kcal charts indicating the caloric value of foodstuff. Such a chart can be purchased in paperback form at many bookstores if you do not already have one. Also you are to record as accurately as possible your daily activities and use the accompanying sheets to estimate the Kcals expended. It is important that you list the foodstuff and daily activities so that your eating habits and activity habits will be revealed. Try not to alter your habits during this experiment. Live a normal type of life, eating what you usually eat and be active in your usual way. Later, if you wish, you can alter your dietary and activity habits if a weight loss or a weight gain is desired. I think that the activity chart indicating the energy expenditure for daily tasks is the better of the two to use. However, if you do participate in the activities listed in the other sheet it might help you keep a more accurate record of your expenditure. Keep in mind that the energy expenditure sheet for daily tasks includes basal metabolism, where the sheet listing the energy expenditure for specific activities does not. However, note that BMR can be determined from the daily tasks sheet.

HEALTH SCIENCE
BIO P.E. 431A Dr. Sellers

Body Wt. Day 1 _____lbs.

Desired Wt. Loss or Gain _____lbs.

Day 14 _____lbs.

WEEK ____

CALORIC INPUT/OUTPUT DATA SHEET

Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7	
Foodstuff	K	Foodstuff	K	Foodstuff	K	Foodstuff	K	Foodstuff	K	Foodstuff	K	Foodstuff	K
Breakfast													
Lunch													
Dinner													
Snacks													
Total		Total		Total		Total		Total		Total		Total	
Activity	K	Activity	K	Activity	K	Activity	K	Activity	K	Activity	K	Activity	K
Total		Total		Total		Total		Total		Total		Total	
+(Gain)		+		+		+		+		+		+	
-(Loss)		-		-		-		-		-		-	

HEALTH SCIENCE
BIO. P.E. 431A

Dr. Sellers

ENERGY EXPENDITURE FOR DAILY TASKS

Activity*		Kcals ♀	Kcals ♂
Sleeping/lying	1	1.0 Kcal/min	1.1 Kcal/min
Sitting	2	1.1 "	1.5 "
Standing	3	1.5 "	2.5 "
Walking	4	2.5 "	3.0 "
Other	5	3.0 "	4.5 "

1. essentially basal metabolism rate plus some allowance for turning over or getting up and down.

2. includes normal activity carried on while sitting, e.g., reading, driving an automobile, eating, playing cards, and desk or bench work.

3. includes normal indoor activities while standing and walking spasmodically in limited areas, e.g., personal toilet, moving from one room to another.

4. includes purposeful walking, largely outdoors, e.g., home to commuting station to work site, and other comparable activities.

5. includes spasmodic activities in occasional sports exerciser, limited stair climbing, or occupational activities involving light physical work. This category may include weekend swimming, golf, tennis, or picnic, using 5 to 20 Kcal/min. for limited time.

*Astrand and Rodahl, Textbook of Work Physiology, McGraw-Hill Book Company, p. 448, 1970.

According to Passmore and Durnin university students use on the average 2930 Kcal/day. The range in their study was from 2270 to 4410.

*Passmore, R. and Durnin, J., "Human Energy Expenditure," Physiol. Rev. 35:801, 1955.

ENERGY EXPENDITURE OF SPORTS AND RECREATIONAL ACTIVITIES

	Calories per Hour Above Baseline Expenditure
Badminton	400
Boxing	700
Baseball	350
Basketball	550
Boating, rowing slowly	400
Boating, rowing fast	800
Boating, motor	150
Bowling	250
Calisthenics	500
Card playing	25
Cycling, slowly	300
Cycling, strenuously	600
Croquet	250
Dancing, slow step	350
Dancing, fast step	600
Field hockey	500
Fishing, from boat or pier	150
Football	600
Gardening, leisurely	250
Gardening, much lifting and stooping	400
Golfing	250
Handball	550
Horseback riding	250
Hunting	400
Jogging	600
Karate	600
Miscellaneous activities requiring little or no arm movement done while sitting	50
Miscellaneous activities requiring some arm movement done while standing	150
Miscellaneous activities that are most strenuous done while sitting	150
Motorcycling	150
Motorscooting	100
Piano playing, leisurely	75
Piano playing, rapidly with much arm movement	125
Pipe organ playing, with much arm and leg movement	150
Reading	25
Running, fast pace	900
Singing	50
Shuffleboard playing	250
Skating, leisurely	400
Skating, rapidly	600
Skiing	450
Squash	550
Soccer	650
Swimming, leisurely	400

	Calories per Hour Above Baseline Expenditure
Softball	350
Swimming rapidly, competitively	800
Tennis, singles	450
Tennis, doubles	350
Volleyball	350
Walking, leisurely	200
Walking, moderately fast	300
Watching movies	25
Watching television	25
Wrestling	800

REFERENCES

1. Althoff, S., Preparing Teachers, Students and Citizens to Deal Constructively with the Problems and Potentialities of Aging, ERIC Clearinghouse on Teacher Education, Jan. 1975.

2. Aranoff, C., "Old age in prime time," J. Communications, 24:4, 1974.

3. Armstrong, P. W., "Comment: More thoughts about senility," Geront., pp. 315-316, 1978.

4. Arthritis Foundation, Arthritis--The Basic Facts, Government Affairs Office, Washington, D.C., 1970.

5. Atchley, P. C., "Dimensions of widowhood in later life," Geront., 15:176-178, 1975.

6. Bein, M., "Biochemical methods and findings in U.S.A. surveys," in A. Exton-Smith and D. Scott (eds.), Vitamins in the Elderly, pp. 25-33, England: J. Wright, 1968.

7. Besdine, R., "Treatable senilities," Psych. Today, pp. 26-27, Oct. 1978.

8. Biermann, J. and Tookey, B., The Diabetic's Sports and Exercise Book: How to Play Your Way to Better Health, Philadelphia: J. B. Lippincott, 1977.

9. Binstock, R. and Shanas, E., Handbook of Aging and the Social Sciences, New York: Van Nostrand Reinhold, 1976.

10. Bjorksten, J., "The crosslinkage theory of aging: Clinical implications," Comprehensive Therapy II, pp. 65-74, Feb. 1976.

11. Block, M. and Sinnott, J., The Battered Elder Syndrome: An Exploratory Study, College Park, Md.: Center on Aging, University of Maryland, Nov. 1979.

12. Blubaum, P., "Maricopa County Sheriff's Department volunteer program," The Police Chief, 63(2):34-36, 1976.

13. Blythe, P., Stress: The Modern Sickness, London: Pan Books, Ltd., 1973.

14. Carp, F., The Retirement Process, DHEW Publication, PHS Publication No. 1778, Washington, D.C.: U.S. Government Printing Office.

15. Chen, Y. P., Income: Background and Issues, Prepared for White House Conference on Aging, Washington, D.C.: U.S. Government Printing Office, 1971.

16. Cook, F. L., Skogan, W., Cook, T., and Antunes, G., "Criminal victimization of the elderly: The physical and economic consequences," Geront., 18(4), 1978.

17. Crain, C., The Arthritis Handbook: A Patient's Manual on Arthritis, Rheumatism and Gout, New York: Exposition Press, 1972.

18. Davis, R. H., "Television and the older adult," J. Broadcasting, 14, 1971.

19. _____, "Television and the image of aging," Television Quarterly, 13:2, 1975.

20. _____, "Television communication and the elderly," in I. Woodruff and J. Birren (eds.), Aging: Scientific Perspectives and Social Issues, New York: D. Van Nostrand, 1975.

21. DeFrancis, V. and Leicht, C., Child Abuse Legislation in the 1970s, Denver, Colo.: American Humane Association, Children's Division, 1974.

22. Feinman, M. and Wilson, J., Live Longer: Control Your Blood Pressure, New York: Coward, McCann and Geoghegan, Inc., 1977.

23. Frank, B., "Dr. Frank's no-aging diet," Family Circle, 88(4), 1976.

24. Galton, L., The Silent Disease: Hypertension, New York: Crown Publishers, 1973.

25. Goldsmith, J. and Tomas, N., "Crimes against the elderly: A continuing national crisis," Aging, 236, 237:10-13, June-July 1974.

26. Goodman, J., Diabetes Without Fear, New York: Arbor House, 1978.

27. Gordon, P., "Free radicals and the aging process," in M. Rockstein, M. L. Sussman, and J. Chesky (eds.), Theoretical Aspects of Aging, New York: Academic Press, 1974.

28. Guthrie, H., Introductory Nutrition, St. Louis: C. V. Mosby, 1975.

29. Harman, D., "Free radical theory of aging: Effect of the amount and degree of unsaturation of dietary fat on mortality rate," J. Geront., 26(4):451-457, 1971.

30. _____, "Free radical theory of aging: Dietary implications," Amer. J. Clinical Nutrition, 25:839-843, 1972.

31. Harris, M., "Mutation rates in cells at different ploidy levels," J. Cell Physiol., 78(2):177-184, 1971.

32. Hayflick, L., "The cell biology of aging," Sci. Amer., pp. 58-65, Jan. 1980.

33. _____, "The cellular basis for biological aging," in C. Finch and L. Hayflick (eds.), Handbook of the Biology of Aging, New York: Van Nostrand Reinhold, 1977.

34. Kahn, C., "What really happens when we get old?," Family Health, pp. 20-24, Sept. 1979.

35. Kastenbaum, R., "Healthy dying: A paradoxical quest continues," J. Soc. Issues, 35(1):185-206, 1979.

36. Kirschmann, J., Nutrition Almanac, New York: McGraw-Hill, 1979.

37. Kupfer, C., "Evaluation of the treatment of diabetic retinopathy: A research project," Sight-Saving Review, pp. 17-28, spring 1973.

38. Lamb, M. J. and Maynard-Smith, J., "Radiation and aging in insects," Experimental Geront., (1):11-20, 1964.

39. Leeds, M. and Evans, K., "The older person as victim," The Police Chief, 63(2):46-47, 1976.

40. Libow, L. S. and Mehl, B., "Self-administration of medications by patients in hospitals or extended care facilities," J. Amer. Geriatric Soc., 18:81, 1970.

41. _____, "Senile dementia and 'pseudosenility': Clinical diagnosis," in C. Eisdorfer and R. Friedel (eds.), Cognitive and Emotional Disturbances in the Elderly, Chicago: Year Book Medical Publishers, 1977.

42. Littleton, J. M., "Old and beaten," The Plain Dealer, Cleveland, Section 1, 25, in M. Block and J. Sinnott, The Battered Elderly Syndrome: An Exploratory Study, College Park, Md.: Center on Aging, University of Maryland, Nov. 1979.

43. Makindonan, T., "Immunity and aging," in C. L. Finch and L. Hayflick (eds.), Handbook of the Biology of Aging, pp. 379-402, San Francisco, Calif.: Van Nostrand Reinhold, 1977.

44. Masters, W. and Johnson, V., Human Sexual Inadequacy, Boston: Little Brown, 1970.

45. _____, Human Sexual Response, Boston: Little Brown, 1966.

46. Middleton, T., Crime and the Elderly, unpublished seminar paper, University of Maryland, Nov. 1979.

47. Pelletier, K., Mind as Healer, Mind as Slayer, New York: Dell, 1977.

48. Peterson, J. and Payne, B., Love in the Later Years, New York: Association Press, 1975.

49. Reichard, S., Levson, F., and Peterson, P., Aging and Personality, New York: John Wiley, 1962.

50. Robertson-Tchabos, E. A., "Cognitive processes of the elderly," lecture, College Park, Md., Feb. 1980.

51. Rubin, I., Sexual Life After Sixty, New York: Basic Books, 1965.

52. Salars, L. B., Cushman, W. S., and Weismann, R. E., "Studies of human adipose tissue: Adipose cell size and number in non-obese and obese patients," J. Clin. Invest., 42:929-941, 1973.

53. Sekauss, M. A., "A general systems approach to a theory of violence between family members," Social Sci. Inform., 12(3):105-123, 1973, in M. Block and J. Sinnott, The Battered Elderly Syndrome: An Exploratory Study, College Park, Md.: Center on Aging, University of Maryland, Nov. 1979.

54. Sellers, W., Caloric input/output data sheet, unpublished health science questionnaire, Concordia University, Montreal, Quebec, Canada, June 1975.

55. Selye, H., Stress Without Distress, Philadelphia: J. B. Lippincott, 1975.

56. _____, The Stress of Life, New York: McGraw-Hill, 1956.

57. _____, "Stress and aging," J. Amer. Geriatric Soc., 18:660, 1970.

58. Shakespeare, W., As You Like It, act 2, scene 5, R. M. Sargent (ed.), Baltimore, Md.: Penguin Books, 1959.

59. Shephard, R., Physical Activity and Aging, Chicago: Year Book Medical Publishers, 1978.

60. Solomon, N., "The study of treatment of the obese patient," Hospital Practice, 4(3):90-94, 1969.

61. Skinmetz, S. K., "Battered parents," Society, 15(15):54-55, 1978.

62. Van Ameronger, C., Book of the Body: The Way Things Work, New York: Simon and Schuster, 1979.

63. Weg, R., Nutrition and the Later Years, University of Southern California Press, 1978.

64. Weg, R., "Changing physiology of aging: Normal and pathological," in D. Woodruff and J. Birren (eds.), Aging: Scientific Perspectives and Social Issues, New York: D. Van Nostrand, 1975.

65. Wershow, H. J., "Comment: Reality orientation for the gerontologist: Some thoughts about senility," Geront., pp. 297-302, 1977.

66. West, M. and Kalbfleisch, J., "Diabetes in Central America," Diabetes, 19(9):656-663, 1970.

67. Woodruff, D., Can You Live To Be 100?, New York: Signet Books, 1979.

MODULE 8: LEISURE

INTRODUCTION

Leisure may be conceptualized as "selective activity in which gratification of present needs, wants, desires, or objectives takes precedence over practical preparation for later gratification" (6, p. 311). Thus leisure is associated with pleasure and immediate rather than delayed gratification. Conceptually, work is the opposite of leisure. Work is practical preparation for delayed gratification. Human beings need to enjoy both work and leisure. When Freud was once asked by a colleague what it takes to be healthy, the Master responded, "arbeiten und leiben," that is, work and love. If one is happy in his/her work and human relationships, a healthy personality can be predicted. We would include leisure in the context of leiben. It is a love, for it is voluntary, pleasurable, under the control of the individual, and leads to instant gratification.

Historically, the concepts of pleasure and gratification were not always welcomed as factors enhancing the quality of civilized life. Aristotle took the positive view that leisure was both the state of freedom from the necessity of being occupied in work or any other type of obligation and the wide range of intrinsically rewarding creative activities such as composing and reading poetry, dancing, singing, and good conversation with fine companions (6, 14). Leisure was the ultimate goal of all work. Seneca, the great Stoic philosopher, emphasized that leisure was the means to the noble end of unrestricted contemplation. Disraeli, the erudite British prime minister, saw increased means (wealth) and increased leisure as the two great civilizers of man (6).

On the other hand, early church doctrine saw work as preparation for entrance into heaven, while leisure was, at best, preparation for tomorrow's labor, or, at worst the devil's temptation by which evil desires could be expressed. In short, pleasure was only permissible as a means to continuation of labor, which was Godly. Leisure for pleasure was the temptation and work of the devil.

With increased secularism and the rise of urban centers, leisure as pleasure became increasingly accepted and legitimized as a human behavior. In the 5th and 6th decades of the 20th century, leisure was conceptualized as time spent in non-work activities. Research was concerned with assessing the quantity of activities (e.g., frequency of involvement in varied activities) using time-budget methodologies (6). The time-budget method suffered a variety of flaws: (1) the lists of activities were neither mutually exclusive or exhaustive, (2) important forms of leisure activity such as sexual activity were not included, (3) no theoretical framework determined the inclusion or exclusion of categories, and (4) the time spent in activities may be theoretically unimportant because the resources to engage in higher-order activities may be lacking (6).

It was with the work of Havighurst and his colleagues (7, 9) that important theoretical and empirical contributions were made. For the first time, leisure was seen as a mediator of stress. Recently, Gordon and Gaitz wrote of leisure as both mediator of stress and means to self-actualization--conceptual themes elaborated in this monograph (6). Following the lead of Dumazedier's Toward a Society of Leisure (3), Gordon and Gaitz listed five major objectives of leisure: relaxation, diversion, development, creativity, and sensual transcendence (6).

Existing research suggests that while ours is a work-oriented society almost regardless of age, work itself is often perceived as the means to leisure. For example, many people work for the social interaction and friendships which the work setting provides (18, 23). These data reinforce the "life satisfaction" model. Here activity and friendships were two of the powerful predictors of life satisfaction in later years. Many elderly complain of having too much leisure time on their hands. Yet, the Duke Longitudinal Study of Aging found that the majority of healthy older people felt they were satisfied with the amount of leisure time available to them (23). In that study, men in the 66-71 years of age category had the most difficulty with unwanted leisure, while women ages 46-55 years expressed difficulty in adapting to the lack of leisure time. Other studies support the notion that too much leisure time is unwanted just as its lack is a trial (7, 9).

The implications for HPERD are both complex and challenging: complex, in that more people are living longer but at the same time come to HPERD programs with a host of problems not found in younger populations, and challenging, in that HPERD activities have the potential to significantly contribute to the older adults' meaning given to life until the moment when death occurs.

As Pfeiffer and Davis (23) found, work remains the primary activity of the older adult even after retirement. Many older people abhor "leisure time." The inescapable conclusion is that greater preparation for leisure needs to be made available to the aging population if they are to be satisfied with later life or reach that final stage which Erickson calls, "ego integrity."

Another challenge to HPERD professionals/students is to develop a theoretical framework which sees leisure programs as a catalyst integrating the factors predicting life satisfaction or well-being of individual and/or society. Such a theory would conceptualize leisure as a means of helping individuals, groups, and societies revitalize and re-create themselves during individual and social crisis or stress. Concerning the latter, would it not be grand to have the power brokers of nations at the brink of war or other catastrophe come to negotiate, not at a table of work, but rather, in an environment of leisure and play? Would such an environment not increase the probability of healthy outcome? Has it ever been tried? Apparently, the value of HPERD as a powerful, socially useful tool to improve the health and well-being of older adults and a shaky world community has been only minimally explored.

This module focuses on the following major themes:

1. Leisure activities may contribute significantly to the older person's life satisfaction and meaning given to life.

2. Leisure activities may serve as "healthy" stressor, mediator of stress, or response to stress.

3. Empirical and scientific data offer a firm basis for the development of gerontologically oriented leisure services.

The learning activities listed under each concept help the learner integrate content into HPERD course/program development.

OBJECTIVES OF THE MODULE:

On completion of this module, the HPERD professional should be able to:

1. Understand and discuss the role of leisure in providing meaning to life and contributing to life satisfaction.

2. Understand the role of leisure time activities as a mediator of stress.

3. Understand the role of leisure time activities as postvention or rehabilitation.

4. Understand the social-political process in implementing leisure time HPERD courses/programs for the older adult.

I. Activity is sine qua non of existence. Its total absence is death. To perceive oneself as inactive or to be perceived as inactive is related to poor health and well-being, specifically, approaching death (15, 16, 27).

Concept I: In many studies, leisure activity participation is a significant predictor of life satisfaction among older persons (12, 21).

A. Other predictors are socio-economic status, perceived health, friendships (quality more so than quantity), and outlet for sexual expression (5, 12, 21, 25). Meaning given to life and death would seem to be predictors, but the hypothesis remains to be tested.

B. Patients who are either terminally or seriously ill tend to receive more responsive treatment from the medical care team when they are active and mobile more so than patients who are inactive and immobile (27).

LEARNING ACTIVITIES:

Objective: To experience the need for activity and its relationship to health and well-being.

1. This exercise may be done with or without a partner. The task is to remain completely immobile for two minutes and to report the physical and psychological reaction. Now, choose any posture, sitting, standing, or lying down. Close your eyes. Concentrate on your physical and psychological reactions. Have your partner time you for the two minutes and then reverse roles. Report your reactions. If you wish try the same exercise for a longer period of time, say 5 to 10 minutes. Were you completely immobile, that is, devoid of movement? Did your body twitch? Did you feel anxious? Did you wish to squirm?

2. Make an activities diary for yourself for one week. On the basis of that diary reduce your activities by 50 percent for one week. Discuss your psychological reactions in terms of personal sense of well-being.

3. Interview older adults confined to bed or wheel chair. Let your independent variable of interest be length of time immobilized, that is, within the past two weeks to more than three months. Interview to determine how these individuals are adapting to enforced immobility (dependent variable). Is the recently immobilized group or the long-term immobilized group better adjusted? What are the psychological reactions (e.g., emotions, frustrations, etc.) associated with recent and long-term immobility?

4. Interview older people at the other end of the activity continuum, that is, the very active. These may be habitual joggers, tennis players, etc. Interview to determine their perception of the importance of activity to their sense of health and well-being. Ask, "How would you cope if you were denied your favorite activity or activities?"

What have you learned from these exercises? What are the implications for HPERD program development?

Concept II: Leisure services (e.g., activities, courses, programs) may provide the environment where other predictors of life satisfaction may occur, such as developing or enhancing friendships and improving perceived health (17, 18).

LEARNING ACTIVITIES:

Objective: To become sensitive to the psycho-social correlates of leisure activities.

1. Gordon and Gaitz categorized leisure activities under five headings on the basis of the intensity of expressive behavior (6, pp. 314, 325). The list and examples are below:

I. Relaxation
   1. Solitude

II. Diversion
   2. Television viewing
   3. Cultural consumption
   4. Reading
   5. Movies
   6. Spectator sports
   7. Entertaining

III. Developmental
   8. Outdoor activities
   9. Travel
   10. Organizations

IV. Creativity

11. Cooking

12. Home embellishment

13. Discussion

14. Cultural production

V. Sensual Transcendence

15. Guns

16. Participation in sports or exercise

17. Dancing and drinking

18. Intimate sexual behavior (included by editor of this monograph)

The task is to determine the relationship between involvement in leisure-time activities requiring expressive behavior and perceived health and opportunity for meaningful social interaction. Thus you are to interview older adults and inquire how meaningful the above list of activities is to the individual, the extent and usefulness of the activity in developing and/or enhancing meaningful friendships, and the degree to which participation in the activity contributes to perceived health and well-being.

On the basis of this exercise, your reading, and experience, how would you develop a leisure activities program to enhance the older individual's health and life satisfaction and opportunity to develop meaningful friendships? What is the value to older people of leisurely solitude? Discuss the difference and consequent health effects of <u>solitude</u> versus <u>isolation</u>. What are the factors that distinguish one from another?

2. Analyze your own leisure activities in the way suggested above. What are some of the healthy psycho-social payoffs of the particular activity which you enjoy? Discuss the concept that "leisure involves a complex of psycho-social meaning."

II. Activity may be a healthy or unhealthy stressor, it may be a response to stress, or it may serve to mediate the stress response (9).

Concept I: Leisure activities may be a healthy stressor because of their characteristics of intrinsic motivation, immediate gratification, and pleasure.

Concept II: Leisure activities may serve to mediate stress, increasing the probability of a healthy stress response.

Concept III: Leisure activities may be an appropriate beneficial response to stress.

LEARNING ACTIVITIES:

Objective: To understand leisure activities as healthy stressor, mediating variable, or response to stress.

1. Select an active leisure activity such as jogging, exercise, walking, or dancing. In order to determine a physiological response to the selected activity, take your resting pulse rate for one minute. Then engage in the activity until you are pleasantly tired. Take your pulse rate after activity. Has there been an increase? If there has been a decrease, consider yourself a physiological anomaly. How do you feel? Discuss how activity may serve as a healthy stressor. Under what circumstances may a healthy stressor become an unhealthy one?

2. Consider any of the stresses which people, particularly older people, endure such as social isolation, perception and interpretation

of disappointment, frustration, threat to security, forced change to a new situation, etc. How might leisure activities serve to mediate or "take the sting" out of an unhealthy stress response such as depression or ego defenses such as denial, repression, projection, or assuming a sick role? Is it conceivable that activity might reduce the depression resulting from the stressor of social isolation, frustration, or disappointment?

3. In a sense, leisure activities may be viewed as stress mediator or stress response. For example, an older person might respond to the stressor of social isolation (feeling alone, abandoned, or rejected) by joining a leisure-oriented club or organization. One could argue whether joining the club was a mediating variable affecting the stress response (e.g., depression, insomnia, despair) or whether it was a response to stress in itself. From a purist's view, joining the club is really a mediating variable or defensive reaction that reduces symptoms of psychosomatic disequilibrium. The point is that leisure activities may well serve to enhance healthy outcome.

Make a list of all of the stresses with which you must generally cope. Under each, list a negative stressor and a stress response which includes leisure or recreational activity. For example, a stressor for many students is taking final exams. A worse stressor is receiving an "F." Such an unfortunate student may respond in one or several ways:

A. Plead with the instructor for a better grade.

B. Ask the instructor for an opportunity to raise one's grade.

C. Indenture oneself for a limited term of servitude.

D. Explore means of annihilating the instructor.

E. Recognize the exam was blown and go drinking.

F. Recognize the exam was blown and go jogging, take a trip to the Caribbean or Mediterranean Sea, watch TV, lift weights, write a poem, etc., etc.

How do you generally respond to stresses? Do you utilize activity? Do you prefer fantasy? Do you tend to respond intellectually, emotionally, physically, or all in some combination?

4. Use the same exercise as in No. 3 but substitute older persons for yourself and his/her boss instead of "the instructor." Instead of failing a course, the stressor is involuntary retirement. Interview several older males and females to determine the varieties of responding to this particular type of stress. Are there noticeable sex differences? Do older people react differently emotionally or physically to stress in terms of type or depth of response?

III. Empirical and scientific data in the gerontological leisure area is increasing, which provides a basis for students and workers in the field (see references).

Concept I: Leisure activity is a predictor, although not the most powerful predictor, of life satisfaction. Apparently, perceived health and economic status are the two most powerful predictors of life satisfaction (5, 21, 25).

Concept II: Personality and social variables influence choice of and meaning given to leisure activities (6, 7, 20).

A. Generally, the higher one is in terms of socio-economic status (SES), the healthier and longer he/she is able to work (6, 7, 23). SES is related to leisure activities: Older adults low in SES generally

choose relaxing, diverting, or sensually transcendent leisure activities. Older people higher in SES generally choose more developmental and creative activities as well as the less risky forms of sensual transcendence (e.g., plays, parties, leadership roles in organizations, etc.) (6).

B. Personality seems to be a factor influencing choice of leisure activities; however, the influence of leisure activity on change in personality patterns has yet to be carefully analyzed. Havighurst suggests that flexibility through diverse leisure patterns may prepare the individual for psychological health in old age (6, 9).

C. Age influences choice of leisure activities. Generally, the older the individual, the greater the amount of time devoted to leisure. The range of leisure activities narrows; lessened activity and a tendency to remain at home influence the style of leisure (6). Frequency of participation changes with age. Some activities seem to remain the same (e.g., TV viewing, discussion, spectator sports, cultural consumption, entertaining, etc.); some activities decrease with age (e.g., going out dancing and drinking, attending movies, participating in sports or physical exercise, using guns for hunting or target shooting, outdoor activities, traveling, reading, and participating in cultural productions); and some seem to increase with age (e.g., relaxation and solitude types of leisure and cooking for men more so than women) (6).

D. Sex role influences frequency of participation in leisure activity. Men participate more frequently regardless of age category (6).

E. Among healthy older people, sex remains of importance as leisure and recreational activity even though sexual activity itself declines. To what degree the sexual decline is due to biological or psycho-social factors remains to be determined (22, 24). Sexual decline is often associated with lack of an available or interested mate, poor health, social class, past enjoyment of sex, etc. (22, 24). The implications for sexual behavior as a leisure time activity and correlate of health need to be more fully explored (6, 15, 16, 24).

LEARNING ACTIVITIES:

Objective: To learn to analyze possible factors predicting the preferred leisure activities of older people.

1. The task is to determine the predictors of preferred leisure activities. You need to interview and observe a wide variety of older people in this exercise. They should be varied in terms of sex (male/female), health (poor/good), educational status (high school or less, some college or college graduate, graduate or professional school experience), age (60-70, 71-80, 81+ years), and ethnicity (black, other non-white, and white). Estimate their personality in terms of extroversion/introversion.

Interview the participants to determine their leisure activity preferences. How long have they been involved with these activities? Determine their past leisure preferences. How long were they involved with these activities? What are the best predictors of present day, preferred activities: sex, health, educational status, age, ethnicity, personality, or past leisure activities and length of involvement?

What combinations of factors seem to predict leisure activities? What does this imply for HPERD program development?

2. You may wish to interview young people in the same manner and compare the two age groups to determine differences. Do you think age itself is the important variable predicting leisure activity choice and frequency of participation, or are other variables involved? For example, how might poorly perceived or poor actual health status influence choice and frequency of participation in leisure activities?

3. Design a leisure activities program for a 70-year-old white male who is a double amputee (legs). How might it differ for a black female double amputee? Would you expect differences? Defend your argument. Describe other older people you have known or worked with who are handicapped. On the basis of what has been learned, design an individualized leisure activities program for that person. Choose your own time frame, e.g., a week, a year, etc.

IV. Leisure activities program development includes the components of leadership, program planning, activity analysis, and agency-colleague cooperation and interaction (1, 2, 2a, 9a, 14, 26).

Concept I: Leadership involves being able to motivate others toward mutually agreed upon goals. Leadership is both process and event. Great leaders are born and made; however, leadership skills may be learned by anyone (13, 14, 26).

A. Included under leadership skills would be knowledge of interpersonal and group processes, communication (including listening) skills, knowledge of styles of leadership (authoritarian, democratic,

laissez-faire, etc.), motivation, insight into and understanding of the social environment including the political environment, etc.

B. Such skills must be practiced and implemented.

LEARNING ACTIVITIES:

Objective: To practice leadership skills.

1. Learn to listen and communicate. Within an even-numbered group, choose a partner. Your task will be to introduce your partner to the rest of the group remembering all the salient facts which he/she communicates to you in a five minute period. Also include your insights of that person in your introduction. Reverse roles. What did you learn of that person through both his/her verbal and non-verbal communication? After the exercise, ask one another how each communicated non-verbally. Were there any behaviors such as pulling at your eyelid that made the audience edgy? Is there anyone you wished you could emulate in their introduction? Why? Why are some leaders like Martin Luther King and Franklin Delano Roosevelt called "charismatic"? Discuss the factors involved in leadership. Can you learn from them?

2. Observe a group of older adults in an environment such as a senior citizens center, nursing home, etc. How would you motivate selected individuals to engage in activities? How would you motivate the group as a whole? Basically, people are motivated by a feeling of reward. Reward may either be in the form of pleasure or may be the absence or removal of some form of pain. It may be intrinsic such as feeling good or elated over some event or circumstance. For example, a stroke victim who is able to move his or her hand to a slight degree for the first time while engaged in one of your specially designed

activities probably would make the HPERD person feel highly rewarded (motivated) to continue his/her work. What motivates you? Discuss how leisure activities might in themselves serve to motivate. Discuss the array of possible motivations which cause people to play poker or bridge, garden, go to the racetrack, vacation, cook, engage in sex, play chess, play a musical instrument in a band, weight train, etc.

3. Discuss the relationship between altruism and motivation.

4. With your group, role-play leadership styles. One person may act out an authoritarian leadership role, another may take the role of a laissez-faire leader, and the third may adopt a democratic role. Before engaging in the activity, select a task or goal. The role of the leader is to simply accomplish the task. Non-leaders must cooperate in realistic ways.

Which style did you enjoy? Which style accomplished the task fastest? Slowest? Is it worthwhile sometime to sacrifice speed of accomplishment for group camaraderie? Is it possible that the authoritarian style would be preferred by certain personalities and under certain circumstances? Analyze and discuss. What are the assets and liabilities of each leadership style?

5. Within the group, everyone is to pair up. Determine a leader within each pair. The leaders are to make the "non-leader" feel good about himself/herself. Rotate until all have had a chance. What did you learn of your own skill of insight? What lessons did you learn? What was perceived as "phoney" or "contrived?" What was perceived as genuine? What strategy did you, as leaders, use?

6. You have been selected to develop an activity program for a drop-in neighborhood center frequented by older adults. List the

skills you will need in beginning this task. How will you utilize the skills and experiences of your members? How would you engender the good will of the social-political community?

7. As Leisure Services Director of a large senior citizens center, you receive word that the county or city executive officer is planning to close down your center even though it serves a large and needy population. Plan your strategy for preventing the event. How might you plan to reduce such probabilities in the future?

8. Brainstorm the qualities of leadership you like and dislike. For example, exploiting a program for personal gain and using "I" language are generally perceived as negative leadership traits.

Concept II: Providing successful leisure opportunities for older adults is a function of program planning (1, 2, 2a, 14, 26).

The process of program planning includes:

1. Identification of the needs, interests, and abilities of the target older population by means of existing knowledge; use of surveys and observation; use of older adults as advisors, consultants, and colleagues, etc.

2. Identification of the environmental factors which complement the programing process.

3. Establishment of realistic goals translated into behavioral objectives. This is a function of the population's needs, interests, and abilities, and the reality and potential of the physical-social environment.

4. Developing a conceptual or theoretical framework to provide an order or "fit" for one's program. For example, a combination of

stress theory and meaning to life theory provides the framework for this monograph's approach to aging programing. A theoretical or conceptual framework is very much related to philosophy. Thus the essential philosophy expressed in this monograph is that HPERD activities may serve to mediate stress toward healthy outcome and may be a means and end to providing a mearing to life.

5. Knowledge and sophistication in dealing with the political realities which affect all programs responsive and responsible to the public sector.

6. Integrating empirical and scientific data into program development.

7. Pilot testing the program whenever possible.

8. Modifying the pilot program on the basis of empirical and scientific data.

9. Implementing the program per se.

10. Evaluating the program.

11. Modifying the program on the basis of evaluation by clientele, staff, and outside resources.

12. Repeat steps 9-11.

LEARNING ACTIVITIES:

Objective: To gain skill in program planning.

1. Inspect a recreation or senior citizens center in your neighborhood. List the architectual and environmental strengths and weaknesses relative to the purpose of the center. Are the acoustics, lighting, flooring, swimming pool ladder and bottom, restrooms, etc., designed with the needs of the older person in mind? What changes would you make?

What safety considerations have been made? What safety precautions need to be included in any modification of existing facilities?

2. By inspecting the facilities, deduce the needs and preferences of the target population. Does the environment reinforce activities relevant to older adults? Are they more relevant for younger age groups of people?

3. On the basis of the content of this monograph, your own experience and knowledge, and other empirical and scientific gerontological data, plan a leisure activities program for older adults in a setting familiar to you. Do you have a philosophy? Upon what is it based? What goals are derived from it? What behavioral objectives? How would you assess the outcome of your program? How would you assure that older adults would be receptive to your program? What individuals in the community could be most helpful to you in actualizing the program? Who could do you the most harm? How would you go about increasing the probability of support from community leaders and influential individuals? How would you reduce the possibility of harm by those same individuals?

To whom would you delegate authority? Ask yourself the question, "How can I motivate staff, clients, and the community to work with me toward that which is good for the community?" Name five people who do or might work with you in such an endeavor. What motivates each person? Is it altruism, recognition and praise, money, responsibility, power, desire to build something worthwhile, and/or a combination of these? How would you meet the motivational needs of your colleagues and collaborators?

4. Design or find an evaluation instrument which would assess the outcome of your program in terms of the perception of clients, staff,

and community members. How would you use evaluation to modify your program?

5. You duly establish your program based upon valid goals and a tenable, logical philosophy. However, because of the newness of the program, no one attends (always a debilitating experience?). How would you rectify the situation? How could that catastrophic situation have been averted?

6. Discuss the concept, "When the leadership is doing its job, no staffer should fail in his or hers."

7. You take over an established leisure activities program. Suddenly 90 percent of your clientele stop coming. Your significant other assures you that you have neither bad breath nor perspiration odor. What do you do to remediate the problem? Where did you go wrong? How can the situation be prevented from re-occurring?

Concept III: A successful leisure program implies meaningful activities. Such activities need to be analyzed for and in collaboration with the older adult (1, 2, 14).

A. Activity analysis has at least three components. One needs to consider the:

1. Cognitive, affective, psychomotor, and psychosocial demands of the activity upon the individual.

2. Needs and desires of the older adult and how the activity will satisfy them.

3. Health risks and safety requirements involved in participation.

B. The ACAEM acronym may be helpful in integrating activity analysis into a meaningful plan of programatic action (17). The letters represent:

Assessment of the individual, total health status and functioning, and the activities which may be meaningful and contribute to improving health and well-being.

Creativity in designing an individualized buffet of activities which will be acceptable to the older adult.

Action in putting the plan to work. Do it!

Evaluation of the outcome. Did it work or not work? Why and why not?

Modification of the action component based upon the evaluation.

LEARNING ACTIVITIES:

Objective: To learn to analyze activities so that they might improve health and well-being.

1. List the major cognitive, affective, psychomotor, and psychosocial demands of at least one activity from each of the following categories: drama, vocal, instrumental, craft, art, sport, low organizational physical activity, paper and pencil game, social recreational activity, dance.

2. List your favorite activities. Why are they your favorites? Analyze in terms of the activity "payoff" to you in terms of cognitive, affective, and/or psycho-social aspects. Do the same analysis for those activities for which you do not care.

3. Pair up with a colleague or older person. Your task is to apply the ACAEM paradigm. Reverse roles if appropriate. Is the paradigm helpful? How? If it is not helpful, how might it be improved?

4. You are working with an obese older man suffering from diabetes and vision impairment. He is isolated from friends and family. On the basis of your assessment, you "create" some mild group activities in the dance and creative movement area with both older and younger people involved. In meeting the gentleman for the first time you comment, "My, we will have to lose some weight, won't we?" He stops, looks you in the eye, and says in a not too gentle voice, "Butt out, Buster." He turns on his heel and shuffles off to the pool room. After you consider your own suicide, what do you do? Where did you go wrong? Discuss the difference between offering and prescribing versus proscribing activities.

Concept IV: The success of any leisure program which serves the public depends upon positive agency-colleague cooperation and interaction (1, 2, 2a, 9a, 14).

The quality of agency-colleague cooperation and interaction depends upon:

A. Identification of the power structure both formal and informal within a community. The power structure includes the political system, the media, labor, business-commerce-industry, religious institutions, and advocacy and/or single-issue groups, etc.

B. Knowledge of the communication-cooperation-coordination continuum.

C. Knowledge of the characteristics of the community from the perspective of ethnicity, geography, socio-economic status, demographic characteristics, etc.

D. Developing and improving working relationships among and between all people who directly and indirectly are involved in the delibery of leisure programs to the older adult.

LEARNING ACTIVITIES:

Objective: To become sensitive to the need for agency-colleague cooperation and interaction.

1. Determine the "power brokers" within your community who would have an effect on the quality of your leisure services program. One way is to talk with a local newspaper editor. Now determine who are the "key" people within a particular institution or agency. Interview one or several. Ask them the following questions:

A. What has that individual learned in implementing his/her favorite projects? Are there basic points to remember? Are there secrets or "tricks of the trade?"

B. In his/her opinion, who are the significant people to be enlisted in developing a leisure program for older adults? In this case, the program per se is unimportant. We are concerned with the process of implementation.

C. How does one best communicate and interact with the persons listed in the above? What are their views, biases, experiences, and perception of aging? Do they prefer direct matter-of-fact or indirect communication?

2. How would you enlist the "power brokers" or key people to support your program? For example, one mutually beneficial way is to include them on Advisory Boards of Directors.

3. What did you learn in communicating with each of the individuals involved? Did you have any preconceived stereotypes of the person before the interview? Did it affect your communication with that individual? How?

4. Now that you are familiar with the power structure of the community, discuss or analyze how you would utilize and coordinate their expertise to either develop a new program or enhance an existing one.

5. One member of the communication-cooperation-coordination continuum is obstreperous, contrary, and generally reacts unfavorably to anything that smacks of the new or creative. Due to state and federal laws, homicide is out of the question. How would you analyze the cause of his/her behavior? What could be done to neutralize or change the destructive behavior into more constructive patterns?

REFERENCES

1. Beverly, E. V., "Creative approaches to the fulfilling use of leisure time," Geriatrics, 30(12):86-94, 1975.

2. Boyack, V. L. (ed.), Time on Our Hands, Ethel Percy Andrus Gerontology Center, Los Angeles: University of Southern California, 1973.

2a. Brill, N., Teamwork: Working Together in the Human Services, New York: Lippincott, 1976.

3. Dumazedier, J., Toward a Society of Leisure, S. McClure (trans.), New York: Free Press, 1967.

4. Elias, M. and Elias, P., "Motivation and activity," in J. Birren and K. Schaie (eds.), Handbook of the Psychology of Aging, pp. 357-383, New York: Van Nostrand Reinhold, 1977.

5. George, L., "The impact of personality and social status factors upon levels of activity and psychological well-being," J. Geront., 33(6):840-847, 1978.

6. Gordon, C. and Gaitz, C., "Leisure and lives: Personal expressivity across the life span," in R. Binstock and E. Shanas (eds.), Handbook of Aging and the Social Sciences, pp. 310-341, New York: Van Nostrand Reinhold, 1976.

7. Havighurst, R., "Social roles, work, leisure, and education," in C. Eisdorfer and M. Lawton (eds.), The Psychology of Adult Development and Aging, pp. 598-616, Washington, D.C.: American Psychological Association, 1973.

8. _____, "The nature and values of meaningful free-time activity," in R. Kleemeier (ed.), Aging and Leisure: A Research Perspective into the Meaningful Use of Time, New York: Oxford, 1961.

9. Havighurst, R. and Feigenbaum, K., "Leisure and life-style," in B. Neugarten (ed.), Middle Age and Aging, pp. 347-354, Chicago: University of Chicago Press, 1968.

9a. Humphrey, F., "Interpreting the role of therapeutic recreation to other disciplines," Therapeutic Rec. J., 2(4):33-38, 1968.

10. Janis, I., Psychological Stress, New York: John Wiley, 1958.

11. Kuhlen, R. G., "Developmental changes in motivation during the adult years," in B. Neugarten (ed.), Middle Age and Aging, pp. 115-136, Chicago: University of Chicago Press, 1968.

12. Larson, R., "Thirty years of research on the subjective well-being of older Americans," J. Geront., 33(1):109-129, 1978.

13. "Leisure today--Leisure and the aging: New perspectives," JOPHER, 48(8), 1977.

14. Leitner, M., A Competency-Based In-Service Training Program for Entry-Level Personnel in Leisure Service for the Aged, unpublished Master's thesis, College Park, Md.: University of Maryland, 1978.

15. Leviton, D., "The intimacy/sexual needs of the terminally ill and the widowed," Death Education, 2(3):261-280, 1978.

16. _____, "The significance of sexuality as a deterrent to suicide among the aged," Omega, 4(2):163-173, 1973.

17. _____ and Santa Maria, L., "The adults health and developmental program: Descriptive and evaluative data," Geront., 19(6): 534-543, 1979.

18. Lowenthal, M. and Robinson, B., "Social networks and isolation," in R. Binstock and E. Shanas (eds.), Handbook of Aging and the Social Sciences, pp. 432-450, New York: Van Nostrand Reinhold, 1976.

19. Miller, S., "The social dilemma of the aging leisure participant," in B. Neugarten (ed.), Middle Age and Aging, pp. 366-376, Chicago: University of Chicago Press, 1968.

20. Neulinger, J., The Psychology of Leisure, Springfield, Ill.: Charles C Thomas, 1974.

21. Palmore, E., "Predictors of successful aging," Geront., 19(5): 427-431, 1979.

22. Pfeiffer, E. and Davis, G., "Determinants of sexual behavior in middle and old age," in E. Palmore (ed.), Normal Aging II, pp. 251-262, Durham, N.C.: Duke University Press, 1974.

23. _____, "The use of leisure time in middle life," in E. Palmore (ed.), Normal Aging II, pp. 232-242, Durham, N.C.: Duke University Press, 1974.

24. _____, Verwoerdt, A., and Davis, G., "Sexual behavior in middle and old age," in E. Palmore (ed.), Normal Aging II, pp. 243-250, Durham, N.C.: Duke University Press, 1974.

25. Spreitzer, E., Snyder, E., and Larson, D., "The relative effects of health and income on life satisfaction," International J. Aging and Human Development, 10(3):283-287, 1979-1980.

26. Vickery, F., Creative Programming for Older Adults: A Leadership Training Guide, New York: Associated Press, 1972.

27. Watson, W. and Maxwell, R., Human Aging and Death, New York: St. Martin's Press, 1977.

REIFICATION

The temptation was to title this last chapter, "Conclusion" or "Disengagement," but it would belie or obfuscate our hope for the future. The obvious hope is that this volume would first serve as a stimulus to interest HPERD professionals and students in the tremendous potential and satisfaction in applying their particular skills and knowledge to the elderly regardless of their health status. Yet, stimulation without action or implementation really does not fully accomplish the purpose of either this volume or the seed from which it grew, the Project on Aging. Thus the title "Reification" was chosen. It means the implementation of theory, concepts, and data contained in this volume into practice. HPERD professionals and students are action-oriented and "do-ers." The Alliance for Health, Physical Education, Recreation and Dance and its National Committee on Aging have little doubt that the potential and the challenge will be joyfully met. Yet both strongly feel the need to develop HPERD programs, always integrating theory and data, seeking new approaches, and investigating heuristic questions of interest.

However, there is a note of urgency which directly influenced the publication of this volume. It has to do with the possibility that the stresses upon all members of society, but particularly the vulnerable such as the poor, the aged, the impoverished, and children, may increase in the 1980s. As this is being written, the Doomsday Clock of the Bulletin of Atomic Scientists has advanced from twelve minutes to seven minutes to midnight, thus indicating a significant step toward worldwide

nuclear holocaust. As this is written, there is talk of reconstituting national conscription, and the possibility of World War III looms large. Inflation, unemployment, and astronomical food, medical, and gasoline and oil costs add to the stressors taxing our adaptive capabilities. Now it is well known that one reaction to intolerable stress is variation of aggression: fighting, homicide, intra- and inter-class rivalry and bloodshed. It is also well known that the vulnerable suffer the most. On the one hand, fearful of being labeled "despairing," one worries over the possible disregard or devaluing of vulnerable populations such as the aged and the dying as competition for survival increases. On the other hand, is it pollyannish, even olympian, to hope that HPERD can serve both as a means to enhance individual well-being and social integration and solidarity in the face of a host of debilitating stressors? Of course, another variation of the aggressive reaction is to determinatively fight to fashion a better world for old and young, rich and poor alike. HPERD is seen as a means to this end.

If Freud said that the child is father to the man, then it may also be said that the man always retains a bit of the child. For when the young and old play and learn together, they have mutual respect and affection. Let the leaders of armies, corporations, nations, and religions gather together in the arenas of playful dance, fun, leisure, and sport rather than boardrooms and war rooms and a better society will evolve.

That is the ultimate hope of this volume.

GENERAL READING LIST

AAHPER. Leisure and Aging: New Perspectives. Washington, D.C., 1977.

AAHPER. Update. Washington, D.C., Mar. and Oct. 1978, Mar. & Oct. 1979, Mar. 1980.

AARP. Modern Maturity. vol. 20, no. 4, Aug.-Sept. 1977.

AARP. Your Retirement Health Guide. Washington, D.C., 1976.

AARP. Your Retirement Psychology Guide. Washington, D.C., 1973.

Adams, Gene M., and deVries, Herbert A. "Psychological Effects of an Exercise Training Regime Upon Women Aged 52 to 79." Journal of Gerontology, vol. 28, no. 1, Jan. 1973, p. 50.

Addison, Carolyn, and Humphrey, Eleanor. Fifty "Positive Vigor" Exercises for Senior Citizens. Waldorf, Md.: AAHPERD Publications.

Anshel, Mark, and Marisi, Dan Q. "Effects of Music and Rhythm on Physical Performance." AAHPER Research Quarterly, vol. 49, no. 2, Spring 1978.

Astrand, Per Olaf. Health and Fitness. Sweden: Stockholm University, 1973.

Astrand, Per Olaf, and Rodahl, K. Textbook of Work Physiology. New York: McGraw-Hill, 1970.

Barrett, Wayne. Walking Tours of America. New York: Kinney Shoe Co., 1979.

Barry, Allan J., and Associates. "The Effects of Physical Conditioning on Older Individuals, I. Work Capacity, Respiratory Function and Work Electrocardiogram." Journal of Gerontology, vol. 21, no. 2, Apr. 1966, p. 182.

Barry, Allan J., and Associates. "The Effects of Physical Conditioning on Older Individuals, II. Motor Performance and Cognitive Function." Journal of Gerontology, vol. 21, no. 2, Apr. 1966, p. 192.

Benestrad, Arne. "Trainability of Old Men." Acta Medica Scandinavica, vol. 178, 1965, p. 321.

Best, Gary A. Individuals With Physical Disabilities. St. Louis: C. V. Mosby, 1978.

Blucker, Judith A. "A Comparison of Selected Physiological Parameters Between Exercising and Non-exercising Young and Older Women." Doctoral dissertation, Florida State University, 1972.

Bodkin, Cora, Leibowitz, Helene, and Wiener, Diana. Crafts for Your Leisure Years. Burlington, Mass.: Houghton-Mifflin, 1976.

Brunner, D., and Jokl, E. (ed.). Physical Activity and Aging. Baltimore: University Park Press, 1970.

Center for Adult Development, Rutgers University. Life Cycles. (An educational game.) Brunswick, N.J., 1979.

Conahan, Judith M. Helping Your Elderly Patient. New York: Tiresias Press, Inc., 1976.

Concept Media. Perspectives on Aging, Program III. Costa Mesa, Calif., 1978. (Loop and cassettes.)

Corbett, Mary. "The Use and Abuse of Massage and Exercise." Practitioner, vol. 208, Jan. 1972.

Cummings, Elaine. "Further Thoughts on the Theory of Disengagement." In Kart, Cary S., and Manard, Barbara, Aging in America. Port Washington, N.Y.: Alfred Publishing Co., 1976.

Cureton, Thomas K. "A Case Study Report of Prof. E. D. W." Journal of Association for Physical and Mental Rehabilitation, vol. 19, no. 5, Sept.-Oct. 1965, p. 144.

Cureton, Thomas K. "A Case Study Report of Sydney Meadows." Journal of Association for Physical and Mental Rehabilitation, vol. 19, no. 2, Mar.-Apr. 1965, p. 36.

Cureton, Thomas K. "Adult Fitness Improvement." Journal of Health, Physical Education, and Recreation, Mar.-Apr. 1974, p. 112.

Cureton, Thomas K. "Improvement of Psychological States by Means of Exercise Fitness Programs." Journal of Association for Physical and Mental Rehabilitation, vol. 17, no. 1, Jan.-Feb. 1963, p. 14.

Cureton, Thomas K. Physical Fitness and Dynamic Health, rev. ed. New York: Dial Press, 1973.

Cureton, Thomas K. The Physiological Effects of Exercise Programs on Adults. Springfield, Ill.: Charles C Thomas, 1969.

Curtis, J., and Miller, D. "Recreation in an Extended Care Facility." Gerontologist, Autumn 1967.

deVries, Herbert A. "Exercise Intensity Threshold for Improvement of Cardiovascular-Respiratory Function in Older Men." Geriatrics, vol. 26, no. 4, Apr. 1971, p. 94.

deVries, Herbert A. "Physiological Effects of an Exercise Training Regime Upon Men Aged 52-88." Journal of Gerontology, vol. 25, no. 4, Oct. 1970, p. 325.

deVries, Herbert A. Physiology of Exercise for Physical Education and Athletics, 2d. ed. Dubuque, Iowa: William C. Brown and Co., 1974.

deVries, Herbert A. Vigor Regained. Englewood Cliffs, N.J.: Prentice-Hall Inc., 1974.

deVries, Herbert A., and Adams, Gene M. "Electromyographic Comparison of Single Doses of Exercise and Meprobamate as to Effects on Muscular Relaxation." American Journal of Physical Medicine, vol. 51, no. 3, 1972, p. 130.

Dickman, Irving R. Outreach to the Aging Blind: Some Strategies for Community Act on. New York: American Foundation for the Blind, Inc., 1977.

Frankel, Lawrence, and Byrd, Betty. Be Alive as Long as You Live. Charleston, W.Va.: Preventicare Publications, Frankel Foundation, 1977.

Funding in Aging: Public, Private & Voluntary. Garden City, N.Y.: Adelphi University Press, 1979.

Hopp, Ralph H. Enjoying the Active Life After Fifty. Brattleboro, Vt.: Stephen Greene Press, 1979.

Howell, Trevor. A Student's Guide to Geriatrics. Springfield, Ill.: Charles C Thomas 1970.

Huyck, Margaret Hellie. Growing Older. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1974.

Irelan, Lola M., and Bond, Kathleen. "Retirees of 1970's." In Migration and Mobility and Aging. Osterlind, C., ed. Gainesville: University of Florida Press, 1974.

Indiana State Board of Health. Nursing Home Activity Directors Course. Indianapolis, 1979.

Irwin, Karen. "Dance as a Prevention of, Therapy for, and Recreation From the Crisis of Old Age." Monograph No. 2. American Dance Therapy Assn., 1972, p. 151.

Kart, Cary S., and Manard, Barbara. Aging in America. Port Washington, N.Y.: Alfred Publishing Co., 1976.

Koss, Rosabel S. "Plug Into the Aging Network." Update. AAHPER, Mar. 1978.

Koss, Rosabel S. "The Pensioner's Program From Sweden." AAHPER, IRUC. Reprint 659 (Unpublished).

Laurey, G. V. "Some Reflections on Aging in the U.S." Geriatrics, vol. 28, July 1973.

Leaf, Alexander, and Launois, John. Youth in Old Age. New York: McGraw-Hill, 1975.

Lemon, Bengtson, and Peterson. "An Exploration of the Activity Theory of Aging." In Aging in America, Kart, Cary S., and Manard, Barbara. Port Washington, New York: Alfred Publishing Co., 1976.

Leslie, David, and McLure, John. Exercises for the Elderly. Des Moines: University of Iowa, Iowa Commission on Aging, 1973.

Leviton, D. and Santa Maria, L., "The Adult's Health and Developmental Program: Descriptive and Evaluative Data." Gerontologist, 19(6), 1979.

Linder, Erna Caplow, Harpas, Leah, and Samberg, Sonya. Therapeutic Dance/Movement. New York: Human Sciences Press, 1979.

Linder, Erna Caplow, Harpas, Leah, and Samberg, Sonya. Therapeutic Dance Movement: Expressive Activities for Older Adults. New York: Human Sciences Press, 1979.

Metcalf, Harlan G. The Pioneer Book of Nature Crafts. Seacaus, N.J.: Castle Books, 1979.

Moran, Joan M. Leisure Activities for the Mature Adult. Minneapolis, Minn.: Burgess Publishing Co., 1979.

Mosston, Muska. Developmental Movement. Columbus, Ohio: Merrill Books, Inc., 1965.

National Association for Human Development (NAHD). Basic Exercises for People Over Fifty. Washington, D.C., 1976.

Nutrition Search, Inc. Nutrition Almanac. New York: McGraw-Hill, 1979.

Palamore, Erdman. "Facts on Aging: A Short Quiz." Gerontologist, vol. 17, pp. 315-320, 1977.

Peery, Johnette. Exercises for Retirees. Milwaukie, Oreg.: North Clackamas Print Shop, 1976.

President's Council on Physical Fitness and Sport. Physical Fitness Research Digest, ser. 7, no. 2, Washington, D.C.: Apr. 1977.

Public Health Service, U.S. Department of Health, Education, and Welfare, National Institutes of Health. The Normality of Aging. Washington, D.C.: (NIH) 78:1410.

Reichenfeld, Hans, et al. "Evaluating the Effect of an Activity Program on a Geriatric Ward." Gerontologist, vol. 13, Summer 1972.

Reinhold, Robert. "New Population Trends Transforming U.S." New York Times, Feb. 6, 1977.

Ricitelli, Mark. "The Therapeutic Value of Exercise in the Aged and Infirm." Journal of American Geriatric Society, vol. 10, 1972.

Riley, Matilda W. et al. Aging and Society, Vol. 1, An Inventory of Research Findings. New York: Russel Sage, 1972.

Ringle, Ken. "Aging America." Washington Post, Sun., Sept. 18, 1977.

Road to Recovery. Rockville, Md.: Biospherics, Inc., 1977.

Ross, Marilyn Heimberg. Creative Loafing: A Shoestring Guide to New Leisure Fun. San Diego, Calif.: Communication Creativity, 1978.

Saxon, Sue, and Etten, M. J. Physical Change and Aging. New York: Tiresias Press, 1978.

Sheehan, George, M.D. On Running. New York: Bantam Books, 1975.

Simmons, Vera. Dancing with Senior Citizens. Nashville, Tenn.: Grace McConnell, 1974.

Skalka, Patricia. "Farewell to the Youth Culture." Ambassador. St. Paul, Minn.: TWA, Apr. 1978.

Smith, Everett L., and Stoedefalke, Karl G. Aging and Exercise. Madison, Wis.: Everett Smith, 1978.

Smith, Hope M., et al. Introduction to Human Movement. New York: Addison-Wesley Publishing Company, 1968.

Sterns, Harvey L., Ansello, Edward F., Sprouse, Betty M., and Layfield-Faux, Ruth, eds. Gerontology in Higher Education: Developing Institutional and Community Strength. Belmont, Calif.: Wadsworth Publishing Company, 1979.

University of Kentucky, Project on Recreation for the Homebound Aging. State of the Art, Trainer's Manual and Resource Guide, Service Provider's Handbook. Washington, D.C.: Leisure Information Service, 1979.

Vickery, Donald M., M.D., and Fries, James F., M.D. Take Care of Yourself: A Consumer's Guide to Medical Care. Reading, Mass. and Menlo Park, Calif.: Addison-Wesley Publishing Company, 1976.

Volson, Edith. "The Hazards of Immobility." American Journal of Nursing, vol. 67, Apr. 1967.

White, Paul D., M.D. Physical Activity and Aging. Baltimore: University Park Press, 1970.

Zahman, L. R. "Exercise by Prescription." Journal of Health, Physical Education, and Recreation. Washington, D.C.: AAHPER, Mar. 1972.

Prepared by
Rosabel Koss, Chair
Alliance Committee on Aging

ALSO AVAILABLE FROM AAHPERD . . .

STROKES AND STROKES: AN INSTRUCTOR'S MANUAL FOR DEVELOPING SWIM PROGRAMS FOR STROKE VICTIMS
In this new AAHPERD publication Jill Heckathorn shares her presonal experience and competence to demonstrate how swimming, water exercises and other aquatic activities can contribute to rehabilitation, recreation and fitness programs for individuals who have suffered strokes. Filling a void in current professional literature on the subject, this manual is designed to be of practical assistance to individuals in many different disciplines — including physical education and adapted physical education, corrective therapy, recreation and therapeutic recreation, physical therapy, occupational therapy, rehabilitation, administration, nursing, medicine and of course aquatics. Activities and approaches that are truly personalized and individualized are emphasized. Invaluable not only as an instructional manual but also for use in inservice programs and college/university courses. 1980.

LEISURE AND AGING: NEW PERSPECTIVES
Assesses the impact of leisure on the aging — in terms of social policy, psychology, sexuality, health and fitness, recreational activities, and individual attitudes and behavior.

LEISURE COUNSELING
In this AAHPERD publication, seventeen authors interpret the leisure counseling process — a means by which a counselor, together with interest finders and resource inventories, helps individuals attain self-realization and an improved quality of life. Those participating may be in the mainstream, institutionalized, or part of a sheltered population such as senior citizens.

SWIMNASTICS IS FUN
Includes a discussion of swimnastics theory and recreational swimming and describes specific swimnastics exercises (warm-up, shoulder, abdominal, waist, hip and leg, extremity, head and neck, and breathing), as well as games, contests, relays, and races. The activities are divided into beginning, intermediate, and advanced levels and are marked if especially appropriate for handicapped, geriatric, or other special groups. 1975.

INDIVIDUALIZED LEISURE PROGRAMS FOR DISABLED INDIVIDUALS
Research based, yet practical in orientation, INDIVIDUALIZED LEISURE PROGRAMS FOR DISABLED INDIVIDUALS offers constructive guidelines for dealing with special populations. This valuable publication emphasizes the rights of handicapped persons and the responsibilities of those who care for them. 1980.

FIFTY POSITIVE VIGOR EXERCISES FOR SENIOR CITIZENS
Lifelong physical fitness for a long life could be stated as the theme of this useful guide for senior citizens. It encourages the flexing and continued use of each portion of the body to improve balance and maintain good health. Philosophy, practice and specialized exercises designed for key muscles make this book an outstanding value for those involved in physical exercise for the elderly. 1979.

DANCE FOR PHYSICALLY DISABLED PERSONS: A MANUAL FOR TEACHING BALLROOM, SQUARE AND FOLK DANCES TO USERS OF WHEELCHAIRS AND CRUTCHES
An illustrated guide for teaching dance activities to persons using wheelchairs or crutches. Instruction includes everything from the waltz to the tango. 1976.

HEALTH, FITNESS AND LEISURE FOR A QUALITY LIFE
AAHPERD's fourth public information film promotes lifelong activity and shows the various settings in which health, physical education, dance, and recreation personnel serve in programs for older adults. It is aimed at motivating decision-makers to incorporate health, fitness, and leisure services into programs designed for adults, particularly the elderly. 1979.

WHAT RECREATION RESEARCH SAYS TO THE RECREATION PRACTITIONER
Highlights the practical aspects of recent recreation research. Contains an overview of the topic and specific sections on administrative behavior, behavior modification, therapeutic recreation, the future of leisure studies, and recreation as a social institution. The appendix provides a guide to information resources for persons with handicapping conditions. 1975.

For current prices and order information, write AAHPERD Promotion Unit, 1900 Association Drive, Reston, Virginia 22091.